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The Harveian Lectures
ON
DISEASE, ITS TREATMENT AND THE
PROFESSION OF MEDICINE IN 1899.

DELIVERED BEFORE THE HARVEIAN SOCIETY OF LONDON
On December 1st, 8th, and 15th, 1898

BY
WILLIAM EWART, M.D. CANTAB., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO ST. GEORGE'S HOSPITAL AND JOINT LECTURER ON
MEDICINE TO THE MEDICAL SCHOOL; SENIOR PHYSICIAN TO
THE BELGRAVE HOSPITAL FOR CHILDREN.



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LECTURE I.

Delivered on Dec. 1st.

THE PRESENT ASPECTS OF DISEASE.

GENTLEMEN,—In addressing you to-day at the bidding of the President and Council I feel that the responsibility of the choice is theirs, not mine, and I need say little of my inadequacy to an honour which is alike difficult to accept, to refuse, or worthily to fulfil. Disease, treatment, and the profession of medicine are topics vast and varied yet capable of being brought into harmony; but in connexion with them your attention will be invited only for those changes which are special to our times. The more I have thought the closer has seemed to me to be the mutual influence at work between the circumstances of the medical profession and those of disease and of treatment. Their joint consideration might perhaps lead to a better understanding of some of our medical anomalies. It would be difficult to find facts possessing any novelty for a learned audience such as this. But in opinions there is endless variety and in variety there may be an escape from tedium. Controversial questions will be avoided; but from delicate questions there is no escape; and I may best conform to your wish by giving you my own opinions without reservation in the welcome expectation of your criticisms at some early date.

THE NINETEENTH CENTURY AND THE "FIN DE SIÈCLE."

From the year 1899 we shall soon be looking back upon the greatest century medicine has ever known, a century of labour and of results. But our recent vicissitudes, our changes, and our prospects will be sufficiently illustrated by

a review of a shorter period, that which is included within the memory of our own generation. It may be asked whether there is anything special in this date to justify a retrospect. "Eadem sunt omnia semper." Dates have for us their significance and in this case the significance lies partly in the expectancy with which the centennial turning-point is looked for by us all. But there is also in our contemporary conditions a special intrinsic excuse for retrospection. Never probably was the future questioned more keenly as to its probable event, for, great as are the wonders we have watched, greater wonders are in reserve. It may be said of this as well as of the last century, that the end seems to be the most exciting part. In the closing days of that century the *dramatis personæ* of medicine were the great physician with his gold-headed cane, the surgeon, great, but of inferior grade to that august person, and the humble apothecary, who would not have ventured to sit down in the presence of these great beings. Gradually, as time went on, the class distinctions became less marked, and now, in the closing years of this century, the physician has lost his cane and his pomp and is only distinguished from his fellow workers in more general subjects in that he is credited with a more ample knowledge of the matters to which he restricts his attention, while the humble apothecary of the early days of the century, who was not paid for his professional advice, but solely for the medicines which he supplied, has given place to the highly accomplished practitioner of medicine and of surgery. He is to be found everywhere through the land, well taught, with a great knowledge of his profession, careful and judicial, wanting but little outside assistance in his work and then only to help to solve some of the difficult or insoluble problems which present themselves in the practice of the profession.

"Fin de siècle" is not an idle term. The whole world is conscious of changes, profound and rapid, and to these none are more keenly alive than ourselves who stand by and watch. They may not have been so stormy as those of a hundred years ago, yet radical, and some of them in a quiet way even subversive. Satirists have described our "fin de siècle" degeneracies. Fortunately degeneracies, like disease itself, which ever renascent life ultimately wears out, are mere passing evils. In the long run change makes for good. Moreover, all the changes have not been revolutionary. There have been evolutionary changes as well. Were I asked to name those of our changes which are most momentous my answer would be—the control of disease and the emancipation of women; the one affecting the entire human race, the other one half of mankind directly and indirectly also the other half. Their influence is already manifest, but they are fraught with expanding results.

One aspect of the emancipation of women belongs strictly to hygiene and under the heading of "physical education" will be dealt with later. The wide subject of their participa-

tion in the work of the world since weaving and spinning, once laborious and useful avocations, have been abandoned may detain us for a few minutes. But between the disappearance of the spinning-wheel and the opening up of higher work for women there is a mysterious interruption in the record of their occupation and one begins to wonder what became of the energy which for that interval of years is imperfectly accounted for and how so little mischief to health seems to have arisen from it. A great change has now set in. Higher education is extended even to the lower middle class and, through the Board schools, to the lower class itself. The natural aptitude and pliability of the sex are thus given their opportunity and this has been seized with eagerness. The secret of the wealth of France is that nearly every man and woman contributes to production. Until recent years in this country a large section of our female population had been unemployed; much may therefore be expected from the mobilisation of so great a reserve. Quiet and peaceful studies for the gentler sex; the forum, with its struggles and excitement, for man. This division of labour would apply, with modifications, throughout the scale of professions and employments. In all sciences if their labours are to be divided, and particularly in botany and biology, the domain of fine and patient observations seems to be specially indicated for women. In literature there is in the place of the aimless reading of novels a tempting field now vacant, since in our profession and in others also philology has been discouraged on the plea of over-pressure and one of the richest and most useful of our educational studies is therefore neglected. Molière ridiculed the ladies who took an interest in the study of Greek, but we should now hail their assistance whilst envying their opportunities of combining one of the highest personal pleasures with public advantage.

The accession of women to the ranks of the profession is for us the most important part of this large question. A need has been supplied and a vacancy filled in lines of work for which neither aptitude nor opportunity fit the medical man. A providential coincidence may be traced in this development at a time when the responsibilities of civilising new worlds are, as it were, suddenly cast upon us. Civilisation in its commercial aspect is now carried on at racing speed by steam and electricity. True civilisation of the human beings themselves could be carried out with like rapidity only by the influence and example of women, and who among them can compare in influence and general fitness with the members of our profession under whose enlightened guidance other workers might carry out the beneficent scheme? How different this scheme of civilisation from the former methods which relied upon ardent spirits and the rifle as their chief weapons. India, China, and Africa are the vast fields which will be open to this, the highest of civilising agencies next to that of the missionaries whose labours it would assist. But the number of those fitted and willing to

embark upon such arduous enterprises must remain limited. Within our own boundaries, however, plenty of scope may be found for a majority of the workers. The same civilising influence has to be carried into the heart of our cities and into the homes of the people. The enormous wealth of this country is in strong contrast with our pauperism which a long period of State relief has failed to remedy. It is becoming more and more evident that individualism in charity is the only hope for a cure and that the best way to raise the level and provide for the comfort of the lower classes is the education of the women by women. This is the kind of work which would throw usefulness and interest into thousands of lives imperfectly satisfied by the mere vanities of the hour and could achieve, if organised, incalculable good.

THE CONTRACTION OF THE FIELD OF MEDICAL PRACTICE.

The other great fact around which my remarks will centre is the increasing limitation of disease and the contraction of the field of medical practice. It will be seen that in many cases ailments which hitherto had belonged to the exclusive care of the general practitioner have had a tendency to escape from his undivided control. The causes of this change are various, its ultimate consequences of considerable importance, and to them some attention will be devoted in due course. Other changes no less remarkable have occurred affecting the status, the practice, and the prospects of the profession. They have taken place at the two extremes of the professional ladder and it is significant of the completeness of our representative character of the entire human family that these changes should have been in opposite directions. The same period which has witnessed the undue influence of democratic ruling on some of our members has also thrown lustre upon the entire body by the conferment upon one of us of the highest honour in the state. Changes in the latter direction belong to those which I have termed "evolutionary." The other change we must regard as a "revolutionary" one and therefore subject to revision. It is one which might be regarded as not concerning us, yet there is good ground for our discussing it. Whilst the difficulties of some of our *confrères* have been at their worst, what notice have we taken of them, you and I? Neither the consultant nor the affluent general practitioner has any personal share in these troubles. Nevertheless, they affect the vital interests of the profession by affecting individually its members, those least likely to have the necessary opportunities and power for grappling with the question. Is it not part of our duty at least to take cognisance of their troubles, and when these are realised to help them to find a remedy?

THE GRADUAL DIMINUTION IN THE PREVALENCE OF DISEASE AND ITS CAUSES.

The prevalence of disease has considerably diminished within the memory of the present generation and if its characters have altered in any degree the change has been rather in the direction of attenuation. The origin of this improvement is not far to seek; it is to be found in our improved knowledge of the causes and of the natural history of disease and in the system of repression based upon it, which includes direct methods applicable to some of the infectious diseases and indirect methods for other forms of disease. These two groups will claim our separate consideration.

The parasitic nature of infective disease.—The notion of the parasitic origin of disease dates back to a remote antiquity, but the full proof of its correctness has been delayed until our own times and with it the idea that their spread can be controlled and even arrested. Contagion was a powerful argument for the theory of a living and continuously multiplying *ens morbi*. But where, as in the endemic diseases, a direct transmission failed to be traced the elements were made to bear the blame. The mysterious cropping up of epidemics led support to the theory of spontaneous generation, and, strange to say, even within our own time, spontaneous generation was for a while the burning question until all doubts were finally set at rest by Pasteur. We are now aware that whatever may be the individual channel of communication the cause of each of the infective diseases is a living thing, capable of being destroyed in its nidus, if only we knew how, and of being stopped in its transit.

This result due to modern science and research.—The progressive diminution in the prevalence of some of our most fatal diseases is not merely fortuitous but the direct result of our successful interference. Each of the great victories over disease has been the reward of a long and systematic siege planned in each detail by scientific knowledge. This plan of campaign is in some respects analogous to that of the astronomer in quest of a missing planet. His early calculations seem to have no reference to the object which he seeks, but with fatal precision they ultimately guide the axis of the telescope. It is not for me to depreciate the value of imagination. We owe much to it in science, for without its help some of the most fruitful facts might remain unproductive. This is, indeed, the history of many of our greatest discoveries. They have been rediscovered long after the premature spark of genius had flashed in vain for a world too obtuse and unimaginative.

Specialism in research; bacteriology.—Progress nowadays is subservient to the trained use of instruments of precision and to the faultless accuracy of scientific experiment. Specialism has been much decried. It is a necessary evil of

the day, or rather it is the first essential for good work. Nowhere is this more apparent than in the progress of pathology. Without bacteriology, that most specialised of all our branches of study, none of our latest discoveries could have been made and it is through the concentration of labour upon special lines that its greatest results have been attained. All honour is due to Koch who opened up the road to trustworthy experimentation by his careful elaboration of the technique and his broad generalisations on the principles of bacteriology as a science to be placed within the reach of the ordinary pathologist and within the capabilities of a properly-equipped laboratory. It would be a pleasant task to dwell upon the now extensive list of those diseases which have been traced back to their real causes. Relapsing fever, tuberculosis, leprosy, diphtheria, cholera, tetanus, malaria, actinomycosis, glanders, dysentery, typhoid fever, pyogenic infections, and the plague are no longer mysteries, and they by no means complete the list. Each one of these discoveries has cost the long and assiduous labour of men who had had a complete training in each of the ancillary sciences before starting upon their special investigation. It has been our privilege to live within the day of Pasteur, Lister, Virchow, Cohnheim, Koch, and many others to whom humanity is immediately indebted for our present immunities and to whom was first given the power to make and to unmake disease. We cannot forget, however, that the foundation was laid long ago by such men as John Hunter, Jenner, Baillie, Laennec, Cruveilhier, and Rokitansky; and to these immortal names others too numerous to bring up form an honourable escort.

Diagnosis more scientific.—Etiology loses its use unless disease be recognised. In diagnosis also the most brilliant advances have been worked out in the laboratory. Bacteriology has given us tests for some of the most virulent affections and the other sciences have been drawn into the service of the physician. Diagnosis must always be an art, but it is becoming more and more a science, needing technical knowledge and skill and an increasing supply of instruments of precision. One of our most striking innovations is the employment of scientific aid by the practitioner and the adequate means which have come into existence to supply his requirements. At hospitals all this is provided by the clinical laboratory which is therefore an essential part of their equipment irrespective of any educational object.

The suppression of disease.—It is to Jenner we owe the great idea that a disease may be practically stamped out by a thorough application of some universal protection. I need not weary you with figures, but you are aware that wheresoever efficient vaccination and revaccination are performed the mortality from small-pox is almost *nil* and its incidence is restricted both in numbers and degree. In our own

country it survives only by the will of the people. The reduction in the prevalence of the fatal zymotics can be traced to the study of the germs of disease and ultimately to that biological study of the ferments which led the genius of Pasteur to his vast inductions. Preventive inoculation has been practised for cholera, plague, enteric fever, and diphtheria; these diseases, however, are not so prevalent as to warrant universal prophylactic treatment. Vaccination still stands alone as a universally applicable prophylactic and it stands almost exactly where Jenner left it with the single additional improvement of asepsis. It is also to these guiding studies that we owe those immense practical realisations of Lister which have made surgery and which have influenced medicine to its foundation, and it is to them that we are indebted for the fertile teachings of Parkes on hygiene.

The share of hygiene in the prevention of disease.—To hygiene, inspired of bacteriology, are due most of our practical measures of prevention. The suppression of cholera, of relapsing fever, and of typhus fever, the limitation in the spread of the common exanthems, the successful though still fractional results in the limitation of phthisis, and, not least, the improved health and strength of the rising generation,—all this has been the direct fruit of a faithful application of its principles and these results must raise the subject of public health to the highest place in the service of the State and in the opinion of the profession. The methods of cure and of prophylaxis are of two kinds—direct and indirect. Bacteriology which has done so much in the etiology of disease has also in some instances provided us with its direct cure. But in the line of prevention we have chiefly utilised the indirect methods of hygiene. Hygiene is likewise, in a modified sense, a curative agent, for when associated with medication it lies at the root of some of our methods of cure, as in the case of malaria and syphilis. Again, we are indebted to it for the suppression of the epidemics of puerperal fever and septic peritonitis. This great progress was initiated by Semmelweis, but the modern life-saving reforms did not become part of practical gynæcology until Lister's great work had shown how the previously unchecked spread of septic infection could be absolutely prevented.

Pyæmia and septicæmia which claimed so many victims are now almost unheard of. Moreover, suppuration itself, with its long delays, its risks and sequelæ, has now ceased to be regarded as part of the process of healing. This simplification in the tale of surgical sufferings is not limited to the traumatic group. I need merely mention abdominal surgery and the rapid relief which it often affords to chronic affections of the stomach, of the bowel, of the kidney, of the liver, and of the ovary.

The share of bacteriology in the cure and prevention of disease.—Bacteriology has in some diseases supplied us both with the prevention and the cure. But in this country the preventive methods have not had the opportunity which unfortunately obtains in the East. The treatment of diphtheria is the most brilliant example of the curative value of the serum of immune animals in which we must admit the existence of some principle, biological or chemical, endowed with the power of neutralising the toxins generated by the bacillus; the immune serum, although it is itself unable to check the growth of the bacillus, still leads in some mysterious way, perhaps by setting free the full contingent of phagocytes previously paralysed by the toxins, to the arrest of that growth. Less successful but not wanting in promise are other forms of serum treatment. The streptococcus serum, the pneumococcus serum, the antitubercle serum, and the antitoxin treatment for tetanus and for plague are instances in point. Within quite recent years the immunisation of those likely to be exposed abroad to the infection of such virulent diseases as cholera, plague, and typhoid fever has been systematically practised; but since diphtheria has become amenable to treatment in this country there is less necessity for any protection of this kind.

The respective share of medicine and surgery in the repression of disease.—The contemporary advances of surgery have been the evolution of an art which had previously desired its opportunity now given to surgeons by anaesthesia and antiseptics. As the opportunity was afforded a new surgery grew up under their hands, characterised by skilful manipulation and by infinite ingenuity of device. A tribute is also due to dental surgery, the improved methods of which are of incalculable service in the rational treatment of some lingering ailments. The prime honour in these surgical triumphs is, however, due to that science which elaborated antiseptics, the science which led Jenner to his great results, which subsequently guided Pasteur and, as a crowning benefaction to humanity, inspired Lister and his work. The principles of antiseptics have been worked out on those lines of research which are identical with the laboratory methods carried on in the service of medical questions. In all that preliminary research and experimentation there was very little of surgery in a strict sense, but a great deal of biology and chemistry.

Medicine vindicated.—Whilst the brilliant record of surgery has tended to eclipse everything else the achievements of medicine have been unnoticed or minimised. To place things in their true light the province of surgery would seem to be essentially curative. It may save life or limb, but this is a gain to the individual only. Medicine has done more in prevention. Its dealings with the individual are not always brilliant

and its attempts at the cure of disease are too often absolute failures; but it has succeeded in protecting not the individual alone but the community against decimating diseases. The suppression of a single disease, such as typhus fever, small-pox, or cholera, would alone outnumber the surgical total of lives saved. The same opportunity is not afforded by surgical affections, few of which are in any degree communicable. Again, the problems of medicine are slowly worked out. But the fruit of this silent and unrelenting work will not suffer in the end through the delay. In reviewing the whole subject we may classify the infectious diseases in three groups: (1) the extinct diseases; (2) the diseases known to be preventable and which might be extinguished by present methods if carried out more stringently; and (3) the diseases of which the spread has been considerably limited, but which we cannot hope to completely suppress. The first group is a small one, but its mortality was great. It comprises in this country only malaria, typhus fever, relapsing fever, cholera, and leprosy. In the second group we can only mention small-pox and hydrophobia. Their suppression might be brought about if the proper means were adopted. The third is the larger group, made up of typhoid fever, diphtheria, scarlet fever, and the minor exanthems, whooping-cough, mumps, and the septic infections. Its record is less brilliant. Persevering efforts at segregation and disinfection may ultimately succeed, but the practical difficulties are great. In the vast field which remains outside the acute infections two of our national diseases, rheumatism and phthisis, stand out prominently, both of them now well in hand, the one thanks to treatment, the other thanks to prevention.

The diminution in the prevalence of phthisis and the measures of prevention.—In phthisis the combination of two infections, the specific bacillus and the organisms of suppuration, explains the need for the perfection of ventilation. There seems to be at last in this country, after a long and regrettable delay, an earnest resolve to provide this remedy. The first advance was made on the strength of general hygiene and in this direction the Factory Act led the way. The Royal Commission on Tuberculosis has reported a diminution of 27·9 per cent. in the period 1891–1895 as compared with that of 1851–1860 for the age-period 0 to 5 years. Great as this reduction is, it represents little more than half the reduction for the age-periods 15 to 20 years and 20 to 25 years. But under the special heading “*Tabes Mesenterica*” there has been a reduction of only 3·0 per cent. during the interval stated. The report points out that this result, which contrasts with the great diminution of tuberculosis at other ages, has coincided in point of time with the large increase in the consumption of milk. But we are now dealing more and more closely with the agent of the disease in its various modes of dissemination, in the sputum, in food, and in milk. The importance of the

purity of the milk-supply has been revealed by the researches of Professor Delépine which are now leading to practical legislation. Since the tuberculin test enables us to detect disease in the cow before it has become otherwise obvious there is no reason why the spread of tubercle by milk should not be efficiently prevented. It should not be forgotten that it was Parkes who first authoritatively brought forward the treatment of the disease by hygienic and preventive methods. The essential of his views as to the management of phthisical patients was that they should be made to breathe an air as pure as the outer air without the danger of catching cold. But, as we are reminded by Dr. Tucker Wise,¹ another Englishman, Dr. George Bodington, in his essay on the Cure of Pulmonary Consumption on Principles Natural, Rational, and Successful (1839) was the pioneer of doctrines which have only gradually attained recognition.

The diminishing prevalence of the minor ailments and of trade diseases.—The increasing healthiness of the community is a notorious feature of the day and we need not review the long list of the general affections. More important are some of the "trade diseases" which modern hygiene has taken into its care and in which a distinct reduction has been brought about, as, for instance, in the destructive lung diseases from inhalation of dust and in the affections due to intoxication by lead, mercury, and phosphorus.

The prospect as regards the further limitation of disease.—With fewer diseases left to suppress are we likely ever to witness again a wholesale reduction similar to that which was the immediate result of the great advances in hygiene and pathology? The answer can hardly be doubtful. The material for future improvement is not likely to be soon exhausted; neither have we yet fully reaped the fruits of hygiene in the direction of prophylaxis and of an increased vital resistance to disease. Moreover, our weapons of attack are steadily improving. Discovery has almost become an organised function and its return of new facts may be expected with the same regularity as the output from a mine. One after another our parasitic diseases must yield to this never halting progress until sporadic instances of our more trivial zymotics come to be regarded with the same eager curiosity which draws a crowd of students round a stray case of typhus fever or of small-pox. Much disease of a non-infectious kind will also be prevented. If this is not too sanguine a forecast there can be but one conclusion—the ratio of instances of disease to the number of the healthy population must steadily diminish.

¹ THE LANCET, Nov. 26th, 1898.

DISEASE CANNOT ENTIRELY DISAPPEAR.

There is, however, a finality in this encouraging prospect. Although we may in the distant future live healthier lives and die from old age some diseases must remain always. The most virulent diseases are those most easily prevented. But others are incapable of being suppressed and they are apt to be perpetuated by our success in saving the weaker lives.

The periods of life and their medical needs.—Though the decay of old age and the growth of the infant ought to be physiological processes this is almost the exception rather than the rule, and at both extremes of life a variety of affections call for medical assistance. Childhood and youth will remain obnoxious to various infective diseases but also to the ailments incidental to growth and development. The two dentitions, and particularly the onset of puberty, are times when medical advice must always remain essential. Among the minor zymotics which are not segregated measles is still prevalent and too often fatal and our inability to check the progress and the fatal results of whooping-cough is an opprobrium.

The affections of women.—Again, in women the climacteric periods, pregnancy, and child-birth, which should be purely physiological, need watching with special care and gynæcological practice must continue to flourish as it has done in the past.

The degeneracies of middle and of advancing life.—In middle and advancing life the later developments of syphilis will continue to prevail so long as neither the state nor science can cope with this scourge. Many visceral degeneracies are also traceable to infective disease, to wear and tear, to unevenly apportioned labour, and to the thousand risks of life, but most of them to human perversity in turning food and drink into poison. The dietetic diseases of the alimentary, the renal, the cardio-vascular, the nervous, the skeletal, and the cutaneous systems are likely to remain, like gout itself, more prevalent in this than in any other country in proportion with its growing prosperity and in spite of the wiser counsels now prevailing. Cancer abounds; how long will it refuse to yield up its secret and to respond to treatment? As to its alleged increase, some scepticism prevails amongst those best able to judge. But weighty arguments have been adduced in favour of its transmissibility.

Nervous diseases.—Abetted by syphilis and by the marriage of epileptics, these are not unlikely to become more prevalent; at any rate, their diagnosis is now more frequently made. We may distinguish three degrees in nervous disorders. Among the so-called *functional* affections we have hitherto recognised a purely functional group, including

hysteria. But there is also a group of "neurasthenia with degeneration" in which most of the symptoms are functional but in which either syphilitic or simple malnutrition overtakes the nervous substance. I need not dwell upon the remaining group, that of the common forms of central or peripheral *structural* disease. It is evident that the study of the neuron and of its many sufferings will long offer an ample field for pathologists and physicians.

Insanity prevails. Is its frequency increasing? This is not improbable. But, as with cancer, the statistics in the past have not been of a kind such as to enable us to compare the data with scientific accuracy. Insanity is more universally segregated than ever before, and the practitioner is on the whole little troubled with its treatment.

Nerve over-stimulation by drugs; drug diseases.—There is a source of nervous ailments entirely special to this age and the unexpected outcome of our nineteenth-century chemistry and advertising. Intemperance in drugs is becoming more common and it may possibly outstrip the abuse of alcohol and its evil results. The manufacture of new chemical products is supplying the public with endless carbon derivatives of high molecular power and of imperfectly known physiological action. Fortunately many advertised medicines are harmless, but their prolonged use is detrimental if only by delaying the treatment required by the original affection. Others are most dangerous, and their continued indulgence leads to confirmed neuroses or hopeless neurasthenia. Of this we all witness the daily demonstration. It thus comes to pass that as the therapeutic activity of the profession tends to abolish disease that of the public is manufacturing it.

Food diseases and infants' foods.—Whilst the increasing purity of natural foods has reduced our mortality modern ingenuity has been the unintended means of occasionally supplying poison in food. Fortunately ptomaine poisoning is an unusual accident. A much more serious and widespread evil has been the indiscriminating substitution by mothers of condensed milk and manufactured foods for the fresh supply of milk. This neglect of fresh milk and the untutored administration of artificial foods, even of the best kind, without due regard to proportion and to suitability, have been disastrous. To this cause may be attributed the fact that, in spite of modern hygiene, infantile mortality from diarrhoea and marasmus has shown no adequate decrease and sometimes an increase over that noted before these modern inventions.

The danger from the tropics.—Our chief danger in these times of rapid travel and traffic between the Old and the New Worlds is the importation of epidemics of virulent diseases as in the case of cholera of old and recently of influenza with its peculiarly lasting effects; and the plague is our

present nightmare. But short of so calamitous an invasion we may expect a growing number of patients returning from the tropics with impaired health. The study of the tropical diseases is therefore most opportune, for not only must they call for a considerable staff of medical advisers in the newly developed centres, but their sequelæ cannot fail to require considerable treatment in this country. Short of the creation of a large and central hospital readily accessible from all the medical schools for the treatment and the study of these affections nothing would seem to be adequate for the fulfilment of our long-neglected imperial responsibilities, for the needs which coming years will multiply, and for the requirements of this vast metropolis viewed as the centre of an immense tropical empire. In conclusion, we may hope that our list of diseases is already complete and even though we might in future generations react differently to microbes which are now innocuous, our position, thanks to hygiene, will be safer than it ever was before.

THE PROFESSION AS IT IS AFFECTED BY THE LIMITATION OF DISEASE.

Although these remnants of disease keep up an excuse for our numbers there is no escape from a conclusion that the extinction of disease which has already occurred has perceptibly lessened our occupation. Those among us of maturer experience may be able to look back upon the field of practice such as they once knew it. Phthisis was enormously more prevalent than now. The zymotics flourished unsegregated, readily gaining entrance into houses and sometimes, like puerperal fever, dogging the medical man's footsteps, but once in possession were difficult to expel till all susceptible material had been used up; even small-pox was not uncommon because less segregated and less guarded against by revaccination; diphtheria and typhoid fever were unchecked in their spread; and the work of destruction by typhus fever was still active among the poor. But in addition those ailments were then rife with which we are still familiar; there certainly was not less of pneumonia or of bronchitis than at the present time, and diarrhœa and English cholera were assuredly more prevalent. Were the same progressive elimination of disease to continue at the same rate a time might be foretold when our ministrations would have become restricted to those two solemn episodes in the existence of our fellow creatures at which it is a wholesome tradition that the profession should be represented—the general practitioner being called in at the birth, the physician at the death; whilst most matters of health were prearranged from head-quarters by the man of hygiene in his laboratory. After its long and faithful stewardship is the profession to become in the distant future a parasite, a superfluous, purely ornamental profession—once active, now defunct? It may be safely predicted that this Utopian change will never be fulfilled.

OUR SCOPE OF USEFULNESS AND OUR OPPORTUNITIES IN THE FUTURE.

It cannot be gainsaid that this limitation of disease is an increasing factor in the pressure which is felt in the ranks of the profession. Yet we need only look around to see that the medical men are neither fewer than they were nor unemployed. Habit rules supreme over us. In our social life, so persistently conservative, the set relations between employers and employed have a vitality of their own; there is a tendency to utilise agencies which the social system provides for use and the medical man continues to be consulted.

The anxieties of the educated classes.—Two modern developments tend to render him indispensable; both of these are the reflected results of the modern work and progress of science. I refer to the dread of disease and to the desire of prevention.

Leaving aside epidemics of virulent type, such as cholera, typhus fever, and small-pox, which struck terror in the land, the other zymotics, such as scarlet fever, measles, and whooping-cough, were regarded with an indifference bred of familiarity and of an imperfect knowledge of their possible results. But our labours in the suppression of disease have struck a new key. A wholesome dread, in some cases almost amounting to a panic, has seized upon the educated classes. The fear raised by the mention of scarlet fever might be thought immoderate but that it serves an excellent purpose both for the public and for the profession. As a result of this apprehension the medical man's advice is anxiously expected at a stage when formerly homely remedies were thought to be sufficient. The educated classes have also learnt another valuable lesson. They have now been roused to the idea of the preventability of disease and the medical man is often welcomed to conjure away its mere ghost. All round the wise doctrine is gaining ground that advice should be sought before harm has accrued. Although the attitude of the Eastern tribes in face of Kismet never existed among us too much was often left to chance. Nowadays we are approaching more closely to the type of that thoughtfulness for possible evils which prevails in transatlantic England where medical men are so largely consulted. Nor is this limited to the case of the zymotics, which isolation tends to remove from the sphere of private practice. The medical man is largely consulted for discomfords rather than for disease, for alarms rather than for ailments, most of them traceable to the too full enjoyment of the privileges of health and of the good things of this life. Thus, his attention is now drawn by the patient to a different clinical condition and this enlarging display of minor suffering may be one reason why nervous disorders are supposed to be more prevalent. Much

of this might be regarded by sterner observers as due to imagination or to exaggerated sensibility. Yet there is a useful side to this minor form of practice. The medical attendant is afforded an opportunity for warning, and by his attention not only to the arrest and prevention of disease but to the improvement of the life and efficiency of the growing generation he does yeoman's service to the individual and to the State. A change, analogous in some respects, has come over the practice among the uneducated, although with results sometimes adverse to the interests of the profession. But the question of the provident system must be reserved for another lecture.

Our widening opportunities.—Enough has been said to show that our occupation is not gone but has shifted only and that our usefulness is as great in preventing as ever it was in treating disease. But in other directions also, including that of public health, important work awaits our highly trained students. A system of almost universal life assurance under State supervision analogous to that which has been largely introduced into Germany does not exist in this country, but if it were to become established among us it would make a considerable addition to professional work in connexion with the examination of candidates. Certificates of sound health and of freedom from contagious diseases and in particular from any tuberculous taint will be more and more in request as the public becomes more educated in matters of hygiene and more sensitive as to the risks of the dissemination of phthisis. For the selection of careers the profession is already largely consulted and the State exacts qualifying medical examinations for the services, but in this direction there is room for much more work than is at present done. The soundness of future generations and the exclusion of heritable disease are duties which may not be mentioned yet lie dormant near the conscience of the profession. The profession is not anxious to invite any responsibility of this sort, even if a tyrannically radical constitution, such as that of a Utopian republic, were wishful to exact it. Self-sacrificing and alert for the public weal in other directions it has on this point remained silent, and we may doubt whether the difficult question as to the discouragement of the marriage of the unfit and the yet more difficult question of the selection of the fittest are likely to be ever submitted to the profession for a practical solution, although there are those who would urge our being more outspoken and attempting even to create a public feeling on the matter. On the important subject of practical Malthusianism which is probably opposed by the conscience of the profession as a false notion politically, socially, and morally, its attitude has also been one of reserve. I believe it has always been in favour of the principles which are consonant with the best interests of humanity and with the greatest sum of happiness and power. Love of offspring is the healthiest

sign of a race, and the national strength which is its reward stands revealed in connexion with armaments and now more than ever in connexion with colonising power. More advice will be needed by the State than has been hitherto taken, or at any rate acknowledged by it, in regard to ethnological and colonising questions—a mere sample of the large department of state work in which the profession is destined to take a share.

Compulsory education viewed in its medical aspects not an unmixed boon.—The medical supervision of education is another important question which affords considerable scope for professional activity. Where so many children are congregated and where parents are deprived of all means of selecting their associates a serious onus is incurred by the State and nothing short of the greatest care can cover its responsibilities.

The fatal transmission of scarlet fever and of diphtheria is the worst evil and the question arises whether everything has been done which might have been done to prevent their spread. Are all children who are allowed to return to their schools after an attack of diphtheria sufficiently disinfected in one of the most likely directions? The nasal cavities which are nearest to the seat of affection and in themselves often affected by the disease are too often forgotten as a persistent nidus.

The "head-evil" at schools.—But there is another evil, less serious in the eyes of the lay observer, yet fraught with most serious danger to health and even to life, which for many transforms compulsion into direct injury. It is since the children of the poorest have been forced into the Board Schools in the company of children of respectable and cleanly artisans that vermin have invaded homes carefully kept and the health, or even the life, of many a delicate child has been sacrificed. All this is preventable by insisting that the hair of all children under a certain age attending these schools shall be kept short. To the unthinking this may appear an unpardonable interference with the liberty of the subject, but I need not point out where really lie the crying injustice and the loss of freedom. Thus in matters of bodily health and in connexion with the danger of infection a great deal remains to be done which ought to be regarded as of urgent necessity. The examination of children as to their mental adequacy for the work of the school board schools is at last receiving attention and competent medical observers are now appointed to inquire into this question.

The medical attendance upon the healthy.—Princes have always had their body physicians and men of wealth have imitated the princes and given a social position often with little employment to members of our profession. In the

days when Alexander received the ministrations of his faithful physician the rudimental knowledge then current must have provided little occupation for Philip during the conqueror's progress. How great and varied nowadays in personal matters and above all in matters of public health are the responsibilities of the physician to a potentate on his travels ; and how much greater the forethought and provision in the case of armies—witness the recent expedition up the Nile—a campaign of hygiene, where one of the most important factors was the bringing on to the field of action, remote, difficult of access, and unhealthy, a large body of men in so efficient a condition that they could fight and conquer. This health-preserving function of the profession, of vital importance in the case of families, is becoming more widely utilised by the intelligent public and the same principle enters as an undeveloped idea into the scheme of the provident system where its further elaboration might perhaps help to correct one of the worst troubles of the profession.

Public health and sanitation.—A large field yet remains to be occupied in connexion with public health. From time to time some catastrophe directs public attention to the work which has silently been carried on. Meanwhile, from all parts of the country we have heard the same report as to the treatment meted out to the most useful man in the district. Finding this want of appreciation on the part of the constituted authorities can we wonder that there should be imperfect knowledge and appreciation elsewhere? Can it be said of every house that it is now medically inspected even once a year? Yet is any responsibility greater? Are all our public institutions adequately and frequently inspected? The Factory Act was the first attempt to deal with a frightful evil, but the same evil in less glaring proportions is still among us and it can hardly be said that the health and lives of thousands of city workers are protected in the way which any physician might indicate. This trenches upon matters which are semi-private and yet where many are employed there is a public duty to perform. Schools are generally provided with their own physicians and with them rests the ability to call in at proper times sanitary assistance. But turning to hospitals, do all of our hospitals possess a regular visiting health officer? It is now proposed at one of our children's hospitals to provide a staff appointment for a medical officer of public health and it is hoped that this example may find imitations. Lastly, even in the official work of local administration what do we find? Disaster and loss of life from the refusal to use the services which were offered as necessary for, or at any rate conducive to, safety. I need not remind you of what occurred at Maidstone

THE CHANGES WHICH HAVE OCCURRED IN THE CONDITIONS OF PRACTICE.

Although, as I have endeavoured to show, there has been no falling off in the supply of work for the profession as a whole changes have occurred in its distribution, changes also in the conditions of practice, which have led to pressure upon the practitioner. This claims our notice all the more as it may be fairly said that never has labourer been more worthy of his hire. Whilst disease has greatly diminished treatment has grown and is on the increase and the labour of treatment is greater than at any previous time. This is true both from the point of view of the general practitioner and also of the hospital physician or surgeon. The details of treatment are amplified and require more minute care. There is in many cases not only a patient but a nurse to direct, her attendance and skill rendering many measures possible which without her could not be applied, and thus a great deal more is attempted and achieved. The sick room is a busier field and the medical man's call is not a mere formality or wasted in conversation. Hospital physicians and surgeons realise in a special degree this change. A quarter of a century ago it was not considered necessary for them to attend more than two or three times a week and they could then perform their ward duties within a moderate time. During their visit there seemed to be ample leisure for clinical discourse and this doubtless was a charm attaching to conditions of greater ease than now prevail. But the work is now, both for the physician and for the surgeon, so anxious as to render their daily attendance almost indispensable in the interests of the sick.

I am informed by those of mature experience that the conditions of general practice have considerably altered within the memory of living man and particularly within recent years. In the first place the attendances upon invalids are less protracted owing to modern methods and in this the patient is greatly the gainer. But this curtailment is sometimes due to the action of the patient.

The restlessness of patients and specialism.—It is undoubtedly one of the characteristics of the age that there is among us less inclination to bow to authority and on the part of patients or their friends to accept without question or reservation the *dicta* of their once trusted adviser. In the behaviour of those who are compelled to consult us there is to be noticed a restlessness in their desire for the advice of various authorities and a corresponding instability in the relationship between the patient and his medical adviser which is much to the disadvantage of both. There is an old saying that "it is much easier to treat the patient than to treat the patient's friends" who often speak with an assurance about medical matters which is generally proportionate to their ignorance of the subject and which it is particularly difficult to overcome.

Friends have been known in their misdirected zeal to interrupt satisfactory progress by suggesting new methods and new advisers, both probably imperfectly suited to benefit the patient. Formerly the family attendant felt secure and from his knowledge of antecedents and of circumstances reaching back for a generation or more was in a position to act with more certainty than a practitioner casually called in. Sad, and in our experience not infrequent, are the cases where a patient who needed only to trust and persevere on the well-considered lines which had been laid down is passed from hand to hand with little chance of benefit and without any chance of carrying out the systematic treatment which is necessary. Much better had he desired his own faithful adviser, as difficulties arose, to seek the help that in his opinion was most likely to be of service. In this way the field of practice has been lessened for the family attendant, often to the detriment of the patients. But other causes have also led to a diminution of his opportunities. The concentration of study upon definite departments of practice has been peculiar to the last decades of this century. It has been an essential condition for progress and has worked beneficially for the profession and the public. But in this matter there is one essential element, that the specialist should continue at the same time to have competent general knowledge. Medical education as it is now understood tends to that happy result. Too often the patient is misled as to his own troubles; and his most obvious symptom, that which attracts his attention, may be but a small part of the case. Nothing will satisfy him till he has had the opinion of someone who has a reputation in reference to the particular symptom which has caught his attention, and this is a process apt to be repeated indefinitely. By the concentration of the specialist's observation upon this prominent symptom the important and essential elements of the case may pass unnoticed—a risk capable of avoidance had his adviser familiar with his conditions been at hand to reveal the less obvious essentials to a complete diagnosis. The patient's advantage lies in a coöperation between his regular medical attendant and his occasional adviser and this also works for their advantage and comfort. The cultivation of this mutual professional intercourse tends to strengthen the bond of professional brotherhood and well might we say, in the words of a great physician, "When doctors differ who shall decide? but when doctors agree who shall venture to differ?" This reminds us that combination is that which we must look to to ease many of our difficulties and it is a remedy which brings with it pleasure as well as strength.

LECTURE II.

Delivered on Dec. 8th.

THE MODERN ADVANCES IN TREATMENT AS THEY AFFECT THE PUBLIC AND THE PROFESSION.

Introduction.—Surgery and its Influence on Therapeutics.

GENTLEMEN,—I propose to-day to place before you: (1) the progress of therapeutics; (2) the means which they employ, including the supply of drugs and their use and the facilities for the treatment of the sick; (3) the general principles underlying our modern treatment; and (4) the attitude of the public and of the profession in relation to matters of treatment. The changes which have occurred in the treatment of disease are not inferior to the advances in pathology and one of the greatest is the extension of the clinical domain of surgery. Thus conservative surgery and visceral surgery, the diagnosis of disease by exploration, and its surgical treatment by direct manipulation, must occupy the foreground of any review of our recent progress. Surgical art may be said to have attained its ideal when the mechanical cure of disease becomes possible. Abdominal exploration is the most important of all the additions to our surgical resources, which also include the exploration of joints and the illumination of various internal cavities and their local treatment. Not many years ago lives were sacrificed daily to the impossibility of establishing the diagnosis of actual suppuration in the abdominal cavity. To operate on an abdomen where an extensive abscess had not yet formed did not enter the professional mind in those days and the idea of laparotomy for the sake of ascertaining that no abscess existed there was to it as foreign as are to us the thoughts of dwellers in distant planets. The whole anxiety was lest an operation should be attempted whilst pus had not been proved to exist. Most of the cases operated upon died because gangrene and suppuration had proceeded too far before they were revealed by physical signs. These fatalities are now the exception. Physicians have a further debt to acknowledge in the influence which surgical methods have exercised over medical therapeutics in the direction of definiteness in diagnosis and of thoroughness in treatment.

The medico-chirurgical idea in therapeutics.—The relation between the work of the physician and that of the surgeon is one of ever-increasing harmony. There can be no better surgeon than he who is also a physician, and the best physician is one with a practical knowledge of surgery. The division of labour between medical and surgical practice is therefore a necessity of the artist rather than of the art. The spirit of our treatment is becoming more and more identical to our mutual advantage. Hospital physicians find themselves day by day bestowing more time and thought upon the study of cases which it is given to others to cure and upon the discussion of methods which the surgeon may carry out. Some of this work and thought may perhaps not be wasted from a surgical standpoint, since in many cases our aim is to reduce the treatment to a surgical question. All specialists are also guided by the same medico-chirurgical idea, and it is given to some of them to carry it out in its entirety. The limitation of their field of work facilitates its cultivation in every direction, surgical as well as medical. Gynæcology, as it is now practised, is a microcosm of surgical and medical practice combined.

MEDICAL QUESTIONS OF TREATMENT ; OUR THERAPEUTICS, PAST, PRESENT, AND FUTURE.

Turning to medicine we find a progress equally important though not so fully recognised and to this two opposite tendencies have contributed : scepticism, which led to the temporary adoption of the expectant treatment, to the gradual and permanent abandonment of irrational prescriptions, and to the recognition of *vis medicatrix nature* ; and the experimental method applied to therapeutics, now a science in itself, that of pharmacology.

Scepticism in therapeutics.—For a blind belief in drugs and in systematic polypharmacy we must look back for more than 100 years. Scepticism had existed from earliest antiquity but it had never prevailed. Early in this century, however, there came a wave of scepticism stronger than any before. Strangely, homœopathy, while it shattered the old belief, made claims upon our credulity greater than any superstition. It failed to build up any lasting medicinal system though it called attention to some unutilised drugs and modified our opinion of the mode of action of some of the older ones ; but the practical service which it did render was to direct attention to the importance of studying the resources of nature and of adapting diet to her requirements. Owing partly to this influence and chiefly to the scientific search for strict evidence of the alleged action of drugs expectant treatment became for a time the last word of medical art. Drugs were discredited and it was thought that the only safety lay in allowing nature free scope.

Rational treatment.—This paralysing form of scepticism is now dead. The advances in etiology and in diagnosis rapidly revived the hopefulness of the physician by directing his aims towards definite objects, whilst the doctrine of discouragement was soon forgotten by the patients with whom scepticism has never found much favour. Treatment having learnt to strike at the cause was henceforth to be styled rational. The action of the more potent remedies was recognised and studied, and the advantages originally due to empirical treatment were utilised once more and turned to better account. Physiology, as it threw more light upon the mechanism of the healthy functions, tended to explain their deviations and to suggest how these might be rectified. In this relation physiology is another word for preventive medicine and for hygiene and public health, subjects which ultimately found their place as specialities in our therapeutics, and to it is also due the elaboration of the physiological principles of treatment and of prevention. In presence of these definite results the scepticism of to-day is a very different one from any which had preceded. The efficacy of agents such as quinine, mercury, or iodide of potassium appeals to the common sense even of the believer in infinitesimals and the medical sceptics as to vaccination are an extinct race. Since the physiological effect of individual drugs has become matter of demonstration it is no longer the power of medicinal agents which is doubted by some, but the wisdom of utilising that power lest it prove to be a double-edged weapon, as in the case of the narcotics and of other drugs.

Symptomatic treatment.—But the majority, whilst recognising as paramount the rational treatment of the cause, feel no scruple in dealing with its manifestations. Favoured by closer clinical observation this tendency is now a leading feature in practical therapeutics. Each symptom becomes a fresh opening for treatment. Greater than any perhaps has been the influence of clinical thermometry which we owe to Wunderlich. The suppression of pyrexia, apart from its cause, has been pursued as a definite object. To name but a few other symptoms among the most important, insomnia, the neuralgiæ, increased pulse-tension, cardiac depression and excitement have been singled out for treatment by special drugs. Symptomatic treatment, however, could hardly have grown to its present importance but for the extraordinary supply of new remedies each possessed of some prominent virtue and therefore put forward as special remedies for separate symptoms. Chief among these groups of "symptomatic" drugs are the antipyretics, the hypnotics, the analgesics, the anti-spasmodics, the cardio-vascular depressants, and the cardiac stimulants. Whilst therapeutics themselves are becoming more rational an exclusively symptomatic treatment is increasingly patronised, often independently of the physician, by the public and by the pharmacist, and in this there is a danger.

Polypharmacy and monopharmacy.—Polypharmacy in its extreme form has had its day and monopharmacy is now gaining in favour. The combination of drugs—skillful, efficient, and artistic—had been regarded as the highest fulfilment in practical therapeutics. Was this a fundamental mistake? The view that drugs may be of use severally in their different ways, although administered simultaneously, is countenanced by the beneficial results of a mixed diet, but this analogy illustrates also the detrimental effect of any excessive complication. Clinical observation also supports the belief that drugs may act beneficially even when combined and some of these combinations have received the practical sanction of experience—as, for instance, the combination of digitalis and strychnine or of digitalis and iron.

Monopharmacy, now in the ascendant, has lately been reduced to its simplest expression, the use of a single principle taking action upon a single morbid factor. But in a less exclusive degree of monopharmacy, that of the separate administration of any one vegetable drug, there is almost always something of polypharmacy since the various principles contained in each drug are often dissimilar in their action. This is shown in cases of idiosyncrasy by an intolerance for the drug, although some of its chemical constituents may be severally well borne. The isolation of the active principles of each drug and their separate administration represents a much more advanced stage of monopharmacy, the rapid development of which we owe to modern chemistry. This is from the standpoint of treatment by no means a final stage. Even when administered singly the isolated principles of drugs have multiple organs to act upon the organic functions of which may react differently to them; and as in the familiar instance of morphia the therapeutic dilemma is often how to help one of the functions without harming the others. It is now possible in some cases to single out the morbid agent as well as the remedial principle. This fulfilment is the fruit of bacteriology which has provided us with toxins and antitoxins addressing themselves directly to the cause of the disease.

Both methods are still prevalent.—Great as was this advance its sphere of operation remains limited and generally we have to employ less elemental agents. Not infrequently we are obliged to mix our principles after isolating them, as in the case of morphia and atropine and of iodide of potassium and arsenic, and some of us are guilty of even worse polypharmacy. Both tendencies are represented in our contemporary practice and in the growing supply of two opposite sets of pharmaceutical preparations. Pharmaceutical ingenuity has favoured the administration of separate drugs by wrapping up or compressing those which are unpalatable without the addition of any flavouring excipients. To such an extent has this facility been carried that the prescribing function of the physician and the dispensing function of the

chemist have been appreciably restricted. On the other hand we are provided with compound medicines of great complexity which doubtless owe their popularity with the patients as well as with their advisers to the excellence of their form. This is a tribute to the usefulness of a well-planned polypharmacy and to its recognition by a large section of the profession.

The art of prescribing and its modern neglect.—The changes which these advances have wrought in professional practice are great and obvious. One of them—the growing neglect of individual prescribing—may be regarded as unfortunate. This neglect is at its origin traceable to the schools and the need for reform in this direction is urgent. If imperfectly trained in prescribing the young practitioner would the more easily take to the use of ready-made preparations. Push this tendency to an extreme and it would result that the art of prescribing would pass into other hands. Without sacrificing the convenience afforded by an improved supply of suitable compounds an effort might perhaps be made to educate the future practitioner to greater independence in selecting for himself his therapeutic agents. One of the advantages of personal prescribing is the opportunity afforded for adapting the remedies to the individual case and for constantly readjusting them to its changing needs. The worst form of polypharmacy is that which excludes variety. Change is the essence of symptomatic treatment and the art is to save fatigue and disgust for the patient whilst avoiding the cumulative action of drugs and their gradual loss of effect. The systematic rotation of drugs instead of their continuous administration may be suggested as a means of combining grateful variety with the maximum effect from the remedies prescribed. Opinion is divided as to the desirability of prescribing in the vernacular instead of in the old-fashioned Latin formulæ. This is one of our modern questions which deserves serious consideration. There are facts to guide us in the matter, but upon them I will not dwell.

Wholesale pharmacy and the question of dispensing.—The modern innovations in pharmacy have affected both the practising surgeon and the pharmacutists. To those engaged in country practice there is a saving of time, of responsibility, and of extraneous assistance. The dispensing chemist is better trained now than he was, but his work is simplified and the skill of his craft less often required. There is also less of the practical handling of the crude drugs, and this affects the question of apprenticeship. The wholesale manufacture of simple drugs, such as tinctures, infusions, and others, was but the first step to the wholesale manufacture of compounds. The dispensing chemist's occupation is curtailed; but this is not all. Wholesale manufacture means cheapness of production and the coöperative supply has further reduced his opportunities. The operation of

these causes is a factor in a troubled question which lies beyond the scope of our present subject.

The old drugs and the new.—New remedies of undoubted efficacy have been added in the later editions of the British Pharmacopœia and outside the Pharmacopœia there is a yet larger supply; most of them, however, are palliative rather than curative agents and not free from the dangers of habit and of overdosing. I can only allude in passing to the large and important subject of organ-therapy, the idea of which we owe to Brown-Séquard and the merits of which are still awaiting the verdict of experience. Some brilliant results have been achieved, in particular in the thyroid treatment of myxœdema, but there has been much disappointment in other directions. The supply of toxins and antitoxins is still in the safe keeping of experts. The germs of disease have not yet been let loose, but the recent experience in Vienna teaches a lesson not easily forgotten. The bulk of our recent remedies are coal-tar derivatives and their number is constantly growing. Most of them are administered for the sake of the sleep which they promote or of the pain which they subdue; but we are not sufficiently informed as to the effect which they may take upon the tissues and functions. Freely advertised and prescribed they have become known to the public and their unauthorised and irresponsible use by the laity is one of the peculiarities of our time which has variously told upon the public, the profession, and the pharmaceutical branch. Alcohol has long stood at the head of the list of poisonous drugs to which the public has unlimited access. Its value is undeniable, but more than any other it is prone to establish a habit which lessens its effect and brings into play its destructive properties. Happily it is falling into discredit as a therapeutic agent. In the most acute forms of disease such as pneumonia, endocarditis, and in all conditions leading to exhaustion its free administration is indicated, but where the affection is subacute or chronic its continued use has rightly lost favour except as an addition to meals. The endeavour has been made from the side of total abstinence to show results equally good, if not better, from withholding alcohol even in the acute affections, but the suggestion based upon these observations has not so far obtained any general recognition.

Drug diseases.—Ether, morphine, cocaine, and the various hypnotics, anti-spasmodics, and anti-neuralgics, including antipyrin, antifebrin, and phenacetin, are the chief representatives of a dangerous group of drugs to which much injury to health is often due. Sudden seizures from an accidental overdose produce much alarm, though they may leave no permanent mischief. A greater evil is the gradual depression in health which may be induced by the daily use of some of these drugs. The weaker the patient the greater is his dependence upon the comfort which they confer; but their

tendency is to confirm the neurotic habit, and the relief given to the pain is often the means of disguising its cause and of leading to delay in its being rationally treated.

THE CARE OF THE SICK.

Nursing.—The most important part of the physician's treatment is often that which is managed by proxy through his trained and efficient delegate and without her faithful coöperation the surgeon's operative skill might be in vain. From time immemorial the tending of the sick as a work of pure charity had been carried on by religious communities—by some of them as a special and sole object of their association—whilst the housing of the sick was provided by some of them and still continues to be—none better known to us than the sisters of charity who include within their ranks women of high birth and education. But in this country it is within our own times that the science and art of nursing have risen to their high standard, combining the highest motives with the highest efficiency, thanks to the completeness and the discipline of hospital training and to the advanced teaching of the physician and the surgeon. But to Florence Nightingale our chief debt is due.

Hospitals and institutions.—A recognition of the advantages of hospital treatment not to be secured elsewhere except by the wealthy has led to the multiplication of hospitals for the relief of the poor who in this are better off than others, and also of paying institutions, where treatment is organised instead of having to be improvised and where professional services are not unrequited. For a large number of members of the middle-class who lead a solitary life or lack the necessary comfort nursing-homes of this sort are a necessity.

Isolation hospitals; notification and isolation.—The growing number of isolation hospitals and the strict notification of the acute infections are, from the standpoint of public health, improvements of unmixed advantage, but they tend to restrict the sphere of practice. For phthisis also a modified plan of isolation is being practically discussed. This is specially needed for the lower classes in our great towns and it is for them that suitable hospitals are mainly required. Private sanatoria for phthisis have long existed abroad in which the successful treatment of patients is assisted by constant care and supervision, but hitherto we had only had hospitals in the heart of towns where the modern treatment by open air is not provided. We are now to imitate the example of Germany and to provide homes for the less affluent among the middle class where modern methods can be applied, including the discipline which is necessary, though it may be felt to be more irksome in this country where every man is a king. Our greater task, however, concerns the masses whose

aggregate of mortality from phthisis runs to very high figures. The only efficient way to protect the families of the poor is to remove the dangerous patients from their midst to sanatoria where the risk of infection can be fully controlled. The time may soon come when each large city is provided with suitable country isolation hospitals for phthisis. Our climate is proverbially unstable, but I believe that the tempering of the bleak winds is a problem which is not insolvable if the advantages of suitable site and soil and of adequate protection can be secured. Action of this sort which is now contemplated in Liverpool and elsewhere will lead the educated to greater carefulness in the limitation of the infection without any resort to notification or segregation.

The hospital question.—Are the really poor to be the only privileged ones in obtaining hospital treatment and nursing? Are these privileges to be denied to a much larger class who, whilst able humbly to contribute towards the hospital funds, cannot purchase the analogous facilities offered in private homes? To deny to some of those who are quite unable to secure it elsewhere by payment the attendance which is desired and to offer it free of all charge to a lower stratum of poverty would seem to be an uneven dispensation of charity. These difficulties are better known to those who administer than to those who support our hospitals. So long as there are no nursing homes for the poorer middle class where payments can be adapted to the means of each, patients possessing no social or financial claim to gratuitous treatment will occasionally be sent to our hospitals by their own medical attendants.

GENERAL THERAPEUTICS.

As a slight contribution to practical therapeutics I propose to consider briefly some of the broad principles which guide our treatment. A clearer insight into the mechanism of disease has infused greater directness into our methods. Modern physiology has taught us even more than pathology. But we have learnt most, perhaps, from watching in animals and in man the process of spontaneous recovery. These lessons are bearing their fruit. We do not despise the welcome aid of drugs and the opportune placebo, but we have turned to the cultivation of those forces which Nature herself supplies. How different this conception from the old idea that disease was a thing to be starved out of existence, strangled by violent remedies, or made to escape with profuse discharges of serum or of blood. No longer do we see the bleeding of the old days when, because it was spring or autumn, rich and poor flocked to the apothecary to be bled to the point of fainting. There was occasional good in blood-letting and in certain conditions of disease it is now being revived. It was its immoderate use which was so baneful. Our method differs entirely from that of the expectant treat-

ment. Nature cannot always be safely left to herself. Interference, to use the word in an invidious sense, is to be avoided; but our intervention is often indispensable—as, for instance, when chronic obstructions finally lead to a deadlock. This deadlock is the climax of a long continuance of faulty or imperfect function. Long before the crisis the need for intervention existed and the height of our art consists in its timely recognition.

The physiological principles of treatment.—Among the therapeutic agencies suggested by physiology some of the most important are: rest and sleep, activity and energy, habit and change, and physiological rest.

Rest and sleep.—No amount of simple rest of the body can do duty for sleep. Though mere repose may partly satisfy the needs of our vegetative life, sleep alone, that profound sleep which the poet has likened to death, can make good the wear and tear of the higher nervous centres. The difference between individuals in all that relates to sleep is remarkable and would well repay systematic study. Whilst a minimum of sleep is requisite for all there are great varieties as regards the duration and the quality of sleep, and in all of us these are greatly influenced by habit and education. It is the privilege of some to command sleep at any moment, but it is probably exceptional to combine this facility with that of remaining awake at will—a dangerous power when it is abused. Some possess the opposite peculiarity and are subject to the invincible desire for sleep after a definite expenditure of nerve energy. By this they are protected against exhaustion. Interesting physiological speculations, and some practical notions also, are suggested by the remarkable relief and freshness which they derive from even a very short period of sleep. Much tissue repair cannot have taken place during those few minutes of profound sleep which will restore a jaded man to full activity. The energy which he subsequently develops must have been there when he fell asleep, yet it was unavailable. It is therefore clear that these brief and irresistible slumbers are essentially different from the long sleep of the night and that we might turn both the short and the long sleep to separate therapeutic account.

The therapeutic value of sleep and of hypnotics.—Hypnotism, in the sense of a systematic method of animal fascination, does not form part of the present subject. Although it has been given an extensive trial by French neurologists it has never found much favour with us. In some of its applications, though not in all of them, it is one of those extra-physiological, not to say anti-physiological, methods which seek delusive results by fostering a weakness which it should be our duty to combat. Legitimate sleep which strengthens volition together with the rest of our faculties has not yet received the full amount of study which

it deserves. Our practical knowledge of the relative value of our many hypnotics is also in a rudimentary stage. In the waking state the effect taken by our various drugs upon the nervous system is manifestly different. Similar differences may obtain during sleep between the actions of the various hypnotics. The sleep which they severally procure is probably not, as we may have assumed, an identical quantity. Differences in its duration and in the varying delay of its onset must have struck the least observant; but its quality must vary quite as much as we find it varying in the absence of any drugs.

The various degrees of sleep as they range from coma, where both the nerve cells and the conducting fibres are absolutely impervious, to the light sleep of those whose irritable and quick nerve protoplasm is immediately thrown by the touch of a feather or by the slightest sound into that state which means open conduction and full consciousness, there is every shade of quality. The disordered cerebration of delirium and of dreams almost suggest a possibility that orderly communications may pass between local groups of cells, and this might perhaps explain the good counsel which is bred of the night. But these incubations would be merely local settlements of the balance of the day between cells disciplined to collaboration and would be during sound sleep incapable of a wide diffusion throughout the mental sphere.

Long sleeps and short sleeps.—Sleep then would seem to have two offices, both fulfilled in the long sleep of the night which it is our usual endeavour to secure for our patients—viz., that of favouring the slow anabolic changes of repair and that of interrupting consciousness by uncoupling the chain of neurons or conceivably by relaxing protoplasmic tension or tone. This relief of tension is it would seem the only office performed by the shorter spells of sleep and therefore the two forms of sleep suggest two therapeutic objects.

The night's sleep may come without any drugs, but it might need even then to be bettered, and in improving the quality of spontaneous sleep our help is often of value. It might also need to be prolonged.

The systematic prolongation of sleep for the cure of disease is one of our opportunities hitherto little used. In chorea sleep entirely subdues the muscular agitation and this observation has led to the attempt to arrest the disease by prolonging the sleep for considerable periods. A complication arises in connexion with alimentation which in this disease, as in most other nervous troubles, is of primary importance. Partly for this reason, and because more than rest may be needed for a cure, the results hitherto reported have not sufficiently recommended the method. Prolonged

narcosis has also been suggested on the principle of physiological rest in excessive wear and tear of the nervous system. In various nervous affections, including the mental, its renewed trial, combined with suitable methods of feeding, might lead to encouraging results. Better suited perhaps to our every-day needs is a systematic resort to the *shorter sleep*. Like the light instalments of food which restore the lost function of appetite and digestion, short sleep in the day may be essential to the cure of nocturnal insomnia. Our growing wealth in hypnotics warrants a hope that a suitable agent may yet be found which in that direction would minister to the health of the invalid and might command the luxury of sleep at any opportune time for the convenience of the worker.

Body rest as a systematic therapeutic agent has long found its place in our modern treatment for patients whom weakness alone, in the absence of medical advice, would not have compelled to take to their bed. To that class belong the frail women in whom the debility of anæmia, of dyspepsia, and of over-fatigue develops symptoms often mistaken for hysteria. Rest in bed is their first need. In the treatment of chlorosis this is now recognised as the essential element for a rapid recovery. Again, its methodical employment forms an essential part of the Weir-Mitchell plan, but its most striking instance is that of the open-air rest cure for phthisis which within quite recent years has largely replaced at foreign sanatoria the previous method by muscular exercise. The pendulum of medical opinion has swung towards the principle of physiological rest and it is claimed with much reason for this plan, which is combined with liberal alimentation, that rest is essential to the cure of the pulmonary lesions and does good by allaying the characteristic irritability so well displayed in the pyrexia occasioned by exercise or excitement. The prolongation of rest for the muscles over extensive periods cannot fail to occasion some atrophy of the muscular system and of the heart itself. This consideration has led to the mitigation of the rest cure both as regards its duration and its absolute character, and in suitable cases graduated exercise both passive and active and other hygienic methods have been adopted as part of this treatment in its most recent developments.

PHYSIOLOGICAL REST TO THE ORGANS—ABSOLUTE AND RELATIVE.

The efficacy of rest, so ably set forth from a surgical standpoint by John Hilton in his lectures on Rest and Pain (1861-62) as part of our natural therapeutics, has now obtained full recognition in connexion with the organic functions. Its principles are applicable to them. Rest which in the vegetable kingdom is a condition of growth and of repair is a still more prominent factor in the daily visceral life of animals.

Absolute physiological rest to organs is sometimes provided by modern surgery, as in the case of the larynx in tracheotomy, of the rectum in colotomy, of the œsophagus in gastrostomy, and of the pylorus in gastro-jejunosomy. In medical treatment the same principle has received free acceptance, but there has been little scope for its use which has remained almost restricted to the nervous, the muscular, and the alimentary systems.

Rest to the stomach.—Absolute physiological rest of one of our organs can only be secured by deeply interfering with another, sometimes to the extent of reversing its functions. The most striking instance in point is that of the complete suspension of gastric alimentation with the help of rectal feeding. So far as it secures physiological rest to the stomach the result is satisfactory, but at first sight the method is unphysiological. We turn the rectum, an excretory organ, into a channel for absorption. A similar readjustment and reversal of functions is sometimes seen in disease as in the case of the lymphatic system. When the kidney refuses service the function of absorption peculiar to the lymphatics is apt to be reversed. The lymphatic system may then become a reservoir and ultimately, if ulceration of the skin should occur, a channel of excretion for superfluous fluid and for the solids dissolved in it. These facts carry suggestions which some day may be more widely utilised.

Partial physiological rest is much more easily applied in medical treatment and we spend our lives preaching the lesson of moderation, but specially in the direction of the nervous and of the alimentary system. It is perhaps a redeeming feature of illness in general, but more particularly of enteric fever, when it strikes down the middle-aged man that it affords his overworked nervous system a prolonged and timely rest. If the renovation of tissues which is one of the results of a consuming fever were an unqualified advantage, then the Lenten fast and the more extraordinary fasts of certain professionals might claim some foundation in science. More probably, however, the favourable result which is often observed in the convalescent from typhoid fever is the effect of the prolonged rest of many functions, including those of the stomach and of the liver, but more especially of the nervous system. When convalescence is happily conducted the sufferer may find himself a new man, disencumbered and refreshed, with a more active stream of nutrition which reminds him of younger days. But we need no lesson from illness. Our treatment of the nervous system by rest is sufficiently confirmed by its results. Again, in connexion with the alimentary system the advantages of partial rest are evident as in that wholesome cure for the prevalent results of abuse of food as a mere stimulant—an exclusive milk diet combined with rest in bed. Who has not been struck with the singular contrast between the frugal diet, often small in bulk, of hard-working labourers

and the weight and superfluous richness of that of the unemployed? With the latter the labour is visceral and the penalty as well, and their life is mainly shortened by this organic overwork of stomach, liver, and kidney. In vain has modern fashion endeavoured to lengthen the intervals between meals by deferring the midday feast and throwing back the late dinner nearly to the hour which summoned our forefathers to bed. An additional afternoon meal has crept in between them and the early cup of tea before rising also belongs nowadays to elementary hospitality. The least the stomach can claim is that its digestions should not overlap. Unfortunately even its single opportunity, the long rest of the night, is too often encroached upon and a meal of indigestibles thrown in at 12 or 1. Half this amount of food would keep a man in strong work; the idle, even if they be strong, must break down under its weight. Alone the dyspeptic is safe whose constitutional weakness acts as a merciful protection. Physiological rest in this direction is much needed.

HABIT AND CHANGE.

The same principle lies at the root of these opposite agencies. Habit and change are both conservative and their influence in saving energy is most marked in connexion with the nervous and the alimentary system.

Change of scene, change of rest, and change of occupation are all beneficial for the nervous; but it is neither the scene nor the rest nor the work, but the change that does most good. Most often the machine is suffering rather than the energy and it suffers in those parts which have long borne the same recurring strain. Let other cerebral districts be laid under contribution and the overworked areas will obtain their physiological rest. Work in this way becomes productive of rest. Greater still is the relief when mental occupation is exchanged for that which is purely mechanical, and this is part of the secret of the relief to brain fatigue conferred by muscular exercise, which also alters the rate and quality of the metabolism. In the alimentary system analogous benefits are derived from change and the same is also true of our medicines, which it may be wise to alter for the sake of variety and in the hope that a return to the original prescription may be followed by a renewal of its original benefits.

Habit differs from change in the field of its usefulness, but is not far behind it in economising fatigue and in sparing effort. The value of habit lies in the easier performance of those things which are in themselves healthful, whilst change is sovereign in breaking a deleterious succession. Regularity of life and much abused routine will long resist the wearing effect of time and to the well-rooted habit of living many a veteran has owed his ample years.

The cultivation of habit as influencing nutrition.—Habit is intimately connected with rhythm and with the establishment of paths of lessened resistance by constant repetition. It has been alleged that since function is after all the concerted action of many individual cells the education of habit might be regarded as the education of the cells themselves and that we might thus trace its existence and development down the scale of functions, of organs and of tissues, to the cells as a determining influence in their growth and characters. Without holding opinions so advanced we perceive in the vaso-motor system and in its reactions endless instances of the influence of habit upon functions and of the reaction of rhythmic functions upon cells. Leaving aside all theory we may award a place among our modern principles of treatment to the cultivation of habit as a means of influencing intimate nutrition. To put the matter in a more concrete form a life without effort or excitement would do little towards educating any higher habit but would tend towards disuse of function and degeneracy of cells, whilst sufficient training both of the mental and of the muscular activities, to say nothing of the visceral, would be capable of educating certain attitudes of the vessels and of the tissues which they feed and of keeping up above all the habit of muscular and elastic response. This question verges dangerously upon the vexed limits between physiology and pathology. Atheroma has been generally attributed to overwork and overstrain. I have never been able to satisfy myself that this is in every point a rational explanation; at any rate, relative defect or stagnation of nutrition and abeyance of function appear to be dangers not less real which may threaten the vitality of the vessel wall.

FUNCTIONAL ACTIVITY AS A PHYSIOLOGICAL PRINCIPLE OF TREATMENT.

Atony, delayed nutrition, and atrophy are the dangers of rest. Activity and function are the chief stimulants of nutrition. The tendency of properly regulated activity is to strengthen function just as it tends to hypertrophy the tissues. Both muscle and nerve and the body at large are "toned up" by activity and their nutrition is increased. In this total effect there is a reciprocity between the periphery and the centre. Powerful innervation favours the peripheral mechanisms, but we cannot doubt that the nerve centres derive assistance from the work and the tone at the periphery. Upon this principle may be founded a systematic education of the brain by the education of the peripheral mechanisms and particularly of the hand. This principle has considerable application in the treatment of backward children and in many others whose aptitude is at first rather mechanical than towards the abstract. Conversely, we have abundant instances of a central education of muscle in the marvellous dexterity attained in various arts. Concentration of thought and mental effort upon the contracting muscles, as in

the modern training of athletes, is also an instance in point. The bringing into play of the function which has been rested is the most important part of the treatment by rest. Passive and active movement and graduated muscular effort are now resorted to in the treatment of a variety of conditions. Many sufferers, particularly those affected with chronic disease, are treated largely out of bed who were formerly confined to absolute inertia. The healthy heart itself is our best exponent of the great principles of rest and activity. In health cardiac rest is actually apportioned to cardiac work. In the treatment of cardiac disease the share of rest is a very large one and until recent times it was almost an exclusive share, but our principles have undergone considerable alteration. Whilst in phthisis the latest endeavour has been to keep the lungs at rest the prevailing tendency of cardiac treatment is now to gradually train the heart for action. The modern methods identified with the names of Oertel and of Schott are so well known to you that their mention will suffice.

THE RESERVES OF FUNCTION AND THE PRODUCTION OF ENERGY.

Towards the fatal termination of chronic disease our remedies are in vain. For a long time waste has been in excess of repair until at last the function of the higher organs ceases from want of a sufficient supply of force from the exhausted cells whence it should arise. In acute disease the issue of the struggle for life depends upon the amount of work still to be got from the vital organs in spite of the exhaustion which their cells may already have suffered. Organs which prior to its onset were only just equal to the demands of healthy life would break down for want of any available reserve of power. Energy in a general sense is the relative organic capacity for supplying force, and this supply may, as suggested, be inferior, equal, or superior to any special requirement. It may now be stated with less risk of misunderstanding that our first therapeutic desideratum in resisting disease is a margin or reserve of energy. Much energy is latent and may require some extraordinary stimulus to bring it into action. We are all familiar with the surprising amount of muscular work obtained in excess of that which ordinary volition will command under the influence of anger, alarm, or suggestion, even in those who are habitually torpid. In the "energetic" the capacity for work and its actual amount are manifest and this brings out the particular meaning of the word "energy" as used in current language. It is the capacity for work of the nervous system in its office of animating the entire assemblage of functions, organs, and cells. Inasmuch as it raises the energy and calls forth the work of the several organs, energy, understood in this limited sense, is itself a function and as such capable of education. That which is true of this central and ubiquitous function is

equally true of the organs, each of which can be trained by special attention and acquires thereby that structural increase which is the basis of energy and the storehouse of force. Likewise we cannot doubt that hypertrophy and strength of the nervous elements must be the result of their constant use.

The question "Can energy be manufactured?" is therefore perhaps not so absurd as it may sound at first. The feeble primordial cell contains little more than the vitality of the future Cæsar—all the rest is imported. Food will bring the stuff upon which energy will grow, and yet how easily under unsuitable circumstances may food itself extinguish it. The growth of energy during the development of the organism may be raised or depressed in the measure as function is promoted or prevented. Its originally rich promise will avail nothing if its development be arrested by disuse. And its neglect or cultivation will react upon vitality itself and longevity. The growth of effective energy might be regarded as proportionate to the abundance and to the degree of the various organic activities set up between functions—in other words, their mutual stimulations. And if this be correct a judicious training of organs is essential. Active workers, whether with muscle or brain, are aware of the vitalising effect of habitual activity. In conclusion, it would appear that whilst the energy of the organs and of the organism may be suppressed it may be systematically raised, and this is our practical function against the chances of future disease, when the reserve of organic energy is to be the deciding point. Considerable inequalities under similar environment are observed between individuals even as regards the facility for production of the energising stimulations to which reference has been made. In some, apparently deficient in energy, a suitable change in the circumstances or environment may bring into play the increased scale of stimulation which the ordinary environment in the case of that individual had failed to afford. Instances of this apparent manufacture of energy by function is afforded by the special education of imperfect intellects, as at Earlswood—by the gradual vitalising process applied to torpid subjects—and by the more difficult treatment of neurasthenia.

PHYSICAL EDUCATION FOR MEN AND WOMEN.

A great outcry has arisen of late against the excessive importance attached to athletics at schools, at the universities, and at our medical schools, and in the columns of the daily press. The facts may partially justify the criticism. Perhaps a less severe view might be taken of the matter. In this age of unrest and of nervous strain there is little prospect of any slackening of the speed. Some of the consequences of this excessive nervous expenditure have already been noted—neurasthenic affections, insanity, general paralysis, premature senility, and a diminished birth-rate

are partly attributable to this cause. The best corrective is probably a more general adoption of muscular exercise as part of our daily life. Muscular exercise, it is alleged, delays the passing of examinations, not only by consuming time, but by dulling the brain. For my part I would not discourage athleticism in our pupils, for we are all familiar with the excellent results arising from a happy combination of sport and study.

Men in this country have always been athletes and sportsmen. There is, however, something new and to be watched with interest in the spreading cultivation of physical exercise by women. The female world has perhaps never been so much addicted to athletics as in the present day. It has been reserved for our own time to extend to a larger circle sports and games which are the more healthy because enjoyed in the open air. Croquet, lawn tennis, golf, and the bicycle have been the progressive stages through which this development has passed. Among these pursuits the bicycle has done more than any other to revolutionise the formerly so carefully measured tenor of feminine existence, and coming into favour in the declining years of the century it has by some been held responsible for some of its many changes. So considerable a revolution cannot be left unnoticed in its medical aspects. The first outcry against its alleged detriments is already subsiding and even specialists have not condemned it. Muscular exercise is a cure for nerve overstrain and irritation and we can point to its favourable results. Young women are growing up to a greater stature and weight, with better complexions and healthier nerves, than had been witnessed before. These considerations open a wide subject. The health of the people is of no less moment and for them little has hitherto been done. If the improvement to which I have referred is not an imaginary one it should be shared by the millions. One of our most urgent duties will be the provision for the poorer girls of adequate means of healthy exercise. Hard work they get in our great towns, but exhilarating exercise is unknown to them. A praiseworthy movement has been set on foot under the presidency of the Earl of Meath and a British college of physical education was founded in 1891 and incorporated in 1897. This may become the nucleus of a widespread movement which might end in branches being attached to every school in the country.

THE PUBLIC AND THE PROFESSION.

I have anticipated in my first lecture some of the remarks which belong to this part of my subject and I have hinted at the increasing curiosity of the public in matters medical. In some ways the public is more exacting than it was. This is largely due to the increased publicity of information which was formerly regarded as strictly professional. One result is that an opinion is demanded in many cases where it

would be wise to keep the diagnosis from the patient. But there is a growing difficulty arising from the modern facilities for communication by the post, by the telegraph, and by the telephone. Although so much versed in medical affairs, in one particular the laity are not sufficiently informed as to their working. Patients do not always realise that letters can kill. Advice and explanation are easily asked for. It does not strike the inquirer that for two minutes spent over such a message he expects the sacrifice of much time and labour from an overworked man who, let alone any much-needed relaxation, has not time for some of the most urgent requirements and the assumption by him of the anxious responsibility of hurried writings which nothing would tempt him voluntarily to undertake. It were well if the public were enlightened in this matter.

Treatment without advice and advice without treatment.—I need not refer to the number of periodicals addressed to the public, and particularly to the masses, in which professional matters are discussed and professional advice is offered by the editor or his correspondents. In this way many to their detriment resort to treatment without professional advice and the various consequences to which this leads are well known. They affect the practice of medicine and the practitioner. His opinion is not always regarded as the last word on the subject but the patient's and friends' first impulse is often to question it and to seek further advice. And thus the patient is becoming an unstable entity, more owing to our *fin-de-siècle* restlessness than to any blame attached to the medical attendant. The medical attendant himself is much discussed, but the criticism of treatment is a more serious matter because it affects the patient's interest. Some patients discuss it with their friends. Others are more inclined to read the most recent books on the subject and frequently are depressed and made worse by their efforts. Systematic serial consultations are one of the results based upon the deep-rooted conviction that medical men differ. This leads to much practice and is the chief column of support for the consulting fraternity. The consequence of this is that many go from one authority to another getting excellent advice; but the treatment cannot be established on any firm or consistent basis and but few of the things recommended are ultimately carried out. This is the other evil—that of advice without treatment.

LECTURE III.

Delivered on Dec. 15th.

EDUCATION AND MEDICAL PRACTICE: THEIR PRESSURES AND THEIR PROSPECTS.

GENTLEMEN,—Our attention is claimed to-day by the medical profession, its labours, its difficulties, its prospects, and its rewards; but the future of medical education and some questions of practice bearing upon our status will be dealt with more prominently.

THE PROFESSION AND ITS MEMBERS.

It has been said with truth that we are all debtors to our profession. We are associated with its great achievements and taught to appreciate them, and we are conscious also of an honourable participation in all its good works. Lastly, unlike what obtains elsewhere, a livelihood is fairly assured to all. There are, however, material concerns which through pressure of daily avocations are often imperfectly safeguarded or, may be, treated as secondary. Yet for the majority there was a practical purpose in the selection of their career. A few inherit medical traditions and grow up in a medical atmosphere; for them medicine may be a "calling"; for the remainder it is an "opening"; and once they have engaged upon their lifelong labour the material aspect of things cannot be ignored. How closely this object is connected with our professional position will be made clear as we proceed.

OUR PRESSURES AND OUR REFORMS.

Witnessing disappointments and failures in every walk of life it would ill become us to complain of personal hardships or of those purely professional difficulties to which I shall allude. They may be regarded as transitory. The profession is undergoing "a cure of discomfort by counter irritation" which is but a stage in the return to a healthy state. Our pressures are of two kinds: (1) those exerted from outside by the public, by the State, or by the conditions or fashions of our time; and (2) those from within, our internal reforms, always well meant though liable to defects

and to the need for readjustments. The lateral pressures have been sufficiently dealt with. Our worst pressure, however, has been from below and it is to this that we shall presently revert. From above our limitations arise from too much or too little legislation; and of late instances have not been wanting in which the unreasoning opposition of the uneducated vote and that from noisy or hysterical sections have been brought to bear against our action with the sanction of the law. Thus some of our professional events have been retrograde, with great detriment to public advantage, to national credit, and to personal safety. I need not dwell upon recent achievements such as the ticket-of-leave given to small-pox and syphilis and the setting back of the clock of experimental science. These evils were avoidable. Fortunately they may yet be remedied except for the loss of irrevocable time. Compared with the dealings of those well-ruled nations whose progress is not allowed to swerve from common sense and who follow a straight road to any social object we are in this country, thanks to these manœuvres, left hopelessly behind, electing to follow when we might lead. These risks and delays are the sport which delights a free people and which by way of compensation may perhaps keep us active and in fighting condition.

The lateral pressure will probably be relieved for the growing generation. The world is expanding at a rate for which there is no parallel in history. Looking back four hundred years, the discovery of America occasioned great developments and the treasures torn from the harmless natives went to feed the growing trade of the world. But the conquerors alone reaped the benefit and civilising operations were slow to compensate the vanquished for the barbarous inflictions of conquest. The exploration itself was not rapid and occupied many years. In our times an entire continent has not only been explored within a few years but is being wired and railed and the machinery of civilisation called into existence simultaneously at many centres. For this growing world medical aid will be requisite. China also may offer a large field where the English physician may come into fashion. The colonies, especially those where gold is the attraction, are only beginning their period of expansion. But we must realise that Canada, Australia, and New Zealand are no longer dependent upon home supply. They are now medically self-supporting; the pupils of their universities come home for the study of special subjects and to watch our clinical practice, but they are already fully qualified and their numbers are sufficient for the local needs.

Our internal reforms.—Other reforms are of our own making and the chief of these bear upon medical education and examinations and the rules which govern our mutual relations and our relations with the public and the State. Well considered and measured to suit the times, they may not be permanently adapted to meet all future needs; but

they cannot be again modified until after a period of friction which makes us long for the next change and yet dread the unknown complications which it may cover.

PROFESSIONAL ALTRUISM AND SELF-SACRIFICE.

To practise medicine is to learn that our lives belong to others rather than to ourselves. There is an increasing altruism in the lives of most men, but a great deal of this is unconscious and passive, and the mass of mankind are unaware that they are wearing themselves out for the sake of others. Our altruism is both conscious and intended; it is an active altruism, which contrasts with the ways of diplomacy and of commerce. It is indeed a unique sight, that of a whole profession working strenuously for the sake of its fellow creatures at the systematic destruction of its own means of support. Is any disease voluntarily allowed to survive in the individual or the community, any contagion given free scope, any sanitary defect uncorrected, any oppressive or deleterious conditions of labour allowed to proceed unchecked? It is left for others outside the profession to marshal every resource of ignorance and prejudice for the purpose of keeping alive fatal diseases. To them the medical profession might have been thankful, but in our medical press we find only indignation at the resulting waste of life, of health, and of happiness.

The same unreckoning policy has led us to instruct our patients in practical matters of health. Institutions for teaching the principles of hygiene and elementary treatment and first-aid societies have been founded all over the country, every opportunity being utilised to spread among the public ample knowledge of the arcana of medicine, and with the same view medical writers are now lending their pen to the press.

The lateral pressure in our ranks.—But there are limits beyond which generosity itself ceases to be wise. The quality of work deteriorates when instead of strengthening it wears the labourer, and to avoid this is of importance, not alone to the profession. While the earnings of other workers have been rising with the general increase in our national prosperity the reverse has happened with us.

Events have brought about difficulties for which none can be held responsible. All sections of the profession have felt them, each section imagining itself to be the only one to suffer. To put the matter briefly, there may not be too many medical men, but whilst there might be work for all this is neither evenly apportioned nor remunerated. Of the two chief contributory factors the overcrowding of the profession is to my thinking the least. In proportion to the population our numbers are not so overflowing as in some other countries nor are they much greater than at earlier periods. But the opportunities for practice have been

restricted by science and by charity. And it is now manifest that by seeking some relief from these difficulties in the provident system individual members have helped to restrict the supply of employment for the profession.

THE PROVIDENT SYSTEM AND ITS PROBLEMS.

In its ideal form this system seeks to secure the greatest good to the greatest number, benefiting alike the deserving poor and the profession. It seems to have been an early social development in China, dating beyond the commencement of historical times. In this country it is largely a growth of the second half of the century. Its principle is the insurance of the healthy against the expenses of future illness. That principle has been accepted by the profession as belonging to our scheme of usefulness and as tending to professional advantage if only it were fairly worked. The progressive development of the system and the increasing growth and prosperity of the provident societies is a spontaneous testimony to the worth of the medical advantage secured, but for the profession there has been more promise than realisation.

Our services are for many a necessity and it is right that they should be within the reach of those for whom they are intended. The poorer patients have five courses open to them: (1) some of them are sufficiently near the margin of pauperism to enable them to obtain Poor-law relief; (2) many apply to the chemist for advice and medicine, and this largely keeps up the practice of counter prescribing; (3) others are anxious for treatment by hospital physicians and surgeons and endeavour to obtain it at the hospital for which they have a predilection though this may not be the nearest one to their own home; (4) a large number enrol themselves in the lists of the provident dispensaries and of the clubs; and lastly (5) others prefer to get their advice independently and at the time when they think they need it. If the medical man's charges should be prohibitive he would drive this humble practice into the other channels which have been indicated. In order to meet the necessities of the case there must be for his advice a sliding scale within the reach of the humblest means. This unavoidable smallness of remuneration is a reason for his preferring a system where it is to a certain extent disguised. On our side it is a wise provision that the healthy, whilst able to do so, should contribute to the support of the profession whose services they will require when stricken with disease. Payment from the healthy instead of from the sick is, indeed, a principal admirably adapted to meet the crisis. This alone would prove an attraction; but there is a further inducement in the advantage of actual work. Unfortunately the slender compensation has been only partially reaped by the profession. Benevolent in its intent, coöperation has opened the door to

novel dangers and abuses of which the practitioner is ultimately the victim.

The risk to independence and remuneration.—Our prestige is endangered by any hard-and-fast compact which places a definite value upon services. The contract is then apt to be regarded as a commercial transaction in which both sides are supposed to obtain an equivalent. The sentimental reservation may be kept in mind by one of the contracting parties. It is but too likely to be lost sight of by the other and from a strictly legal standpoint it may not then appear that the payment is not a full compensation but an honorarium only. The medical man's position is no longer that of unrestricted freedom and his place not easy, as at the best the bargain is a hard one. If the scale of remuneration should be unfairly low the growth and prosperity of the societies would entail a proportionate extension of the attendant injury. And when the hardship of inadequate payment has once been submitted to there is a danger that the curtailment may be made yet more severe. This downward progress as well as the low level now reached are the serious aspects of a system which we may look to the coming century to ameliorate.

The provident associations.—The beneficent institutions known as dispensaries seek to be self-supporting, but a charitable interest is taken in their management by members of a richer class, and this is a saving clause, for much depends upon the spirit of those who administer as well as of those who receive the relief. The collateral advantages which are often opened up by those who serve a well-conducted dispensary render it a matter for regret that it has not been found practicable to extend them to all the local practitioners or at least to as many as may wish to participate. The remuneration itself is small, but it is fairly divided according to the work done. The difference between these institutions and the *friendly societies* is fundamental; in the latter the softening element of charity is less prominent and that of sentiment in not included. In early days the medical man's willingness to help them may have been considered a favour. This is now changed and they have not always refrained from turning his difficulties to account. Other associations built purely upon the principle of commercial insurance, although businesslike in some directions, are free from any scruples connected with medical etiquette and in other directions there is even less regard than in the friendly societies for the individual interests and for the professional dignity of the medical officer.

The prevalent abuses.—The defects which have arisen are clearly unintentional and the outcome of ordinary economical principles, the societies seeking their corporate interest and securing it, whilst the practitioners have too often unwarily sacrificed their advantage. They include: (1) the obviously

inadequate remuneration for excessive work and responsibility and the partial payment which is sometimes made when it should be made in full; and (2) the unjust appropriation of advantages intended for the poor by those able to pay. Were the charitable ministrations bestowed only on the deserving poor their cost would be a lighter burden. But it is well known that owing to imperfect checks and to the failure to realise the fault of which they are guilty many thoughtless individuals receive relief who are really able to pay a fair honorarium for private attendance, and this is contrary to the intentions of those who manage these institutions. A friend from the provinces reports to me an instance in point: "A farmer in quite a large way was in a club. After being ill for a year he desired to employ a private medical man, to whom he then paid 3s. 6d. or 4s. a visit. Thinking he would like still further advice he paid five guineas as a consultation fee with the greatest readiness. The medical officer must have travelled several miles of bad road to see this man, the only payment being less than cab hire." The same friend also writes: "Years ago most clubs' contributions were at the rate of 5s. per annum per member and that when wages were much lower than now and when membership was confined to the genuine working man. The working man earns more and pays less." "Many clubs unfortunately have lowered the subscriptions to 3s. 6d. per annum." This abuse is not sufficiently guarded against in the organisation of the clubs. Some men of substance are admitted as members or retain a membership assumed in less prosperous days and do not refrain from getting their medical advice at an almost gratuitous rate. The practice of others is thus made to suffer besides that of the medical officer, for should he fail to meet cheerfully the behests of his employers, or refuse to submit to a reduction, the club may find a stranger to fill his place, and this will mean for his *confrères* additional competition in an already restricted field of practice.

The worst troubles arise in connexion with the medical aid societies. They actively canvass the public. Their medical man is advertised, not always fairly, it is said; but he may have to suffer for the advertisement. And the climax is reached when he is victimised not only by the societies but by intermediate agents. Instances have often occurred when agents have induced people to insure and to transfer themselves from the private list to the club list of the same medical man. It can hardly be doubted that funds have gradually accumulated out of the profit on the medical officers' work. In the case referred to by the same informant they did not get more than two-thirds of the payments made to the medical aid societies, whilst the least that should have been done was an equal division of the surplus after payment of working expenses. Illustrations such as these will suffice to show the mode of injury suffered by the profession.

The detriment to the profession.—Diminution in practice goes hand in hand with a lessened value set upon professional services. But the worst aspect of the whole position is the further decline in dignity and emolument due to the fact that, small as may be the pittance, it has its market and that any competition can only lower its figures. The low value which is thus forced by contract reacts upon the remuneration of others who but for this would have been in a position to resist the unmerited depreciation of their services. This means, moreover, a progressive reduction in the opportunities for private attendance upon paying patients of the humbler class, and this reduction tells even more upon practitioners who are not connected with the clubs than upon those belonging to them. Thus special correctives are needed against the evils known as the tyranny of the clubs, the lowering of the fees by competition, the exploitation by medical aid societies, the underselling of medical work, the insufficient wage limit, and also the admission of women and children at a lower subscription than men though they need more attention and previously contributed to private practice.

The remedy.—The continued expansion of the insurance system renders imperative some early provision for that minimum scale of honorarium which shall safeguard the public and the profession and for the adoption of an efficient wage limit. Where is the remedy to come from? Its possible sources are State interference, corporate action, independent combination within the profession, which might be purely local or more general, and education. Some action has already been taken, especially in the direction of local combination; and much credit is due to various local groups for their energy in resisting the pressure of powerful bodies. Though the action has been a purely local one the example may tell at a distance. Indeed, it has suggested the idea of an extended combination which might include representatives of all local associations and through them of all practitioners interested in the provident system. A totally distinct action has also been proposed—that of State aid in this difficult matter. This is a remedy not without a danger, for if the State is to come to our assistance in the details which we ought to arrange for ourselves it is possible that its inelastic control might fall heavily upon us and trammel us when it would be much to our advantage to be free. But leaving State control aside there remains the official action of the professional governing bodies who alone can speak for the entire profession. If I mistake not there is a strong feeling abroad that these difficulties should be noticed officially, but others are inclined to think that the profession ought not to be committed and that independent combination should be able to provide a remedy. Between courses so different it is difficult to choose. One of them pledges the profession, the other allows free scope to self-government without the assumption of too onerous a responsibility.

Among various suggestions in connexion with combination one worthy of notice is made by the Special Commissioner of THE LANCET:¹ "The best method for abolishing medical aid associations, clubs, &c., is for the profession to establish a model institution of its own open to all local practitioners and managed exclusively by the medical men themselves. Then no practitioner would have any excuse for selling his services to a speculating commercial concern; if he wanted club patients he could join the public medical service. All patients who could not pay the usual fees would have the option either of joining this institution as subscribers or of claiming relief under the Poor-law. The battle of the clubs would be terminated, for the medical clubs would cease to exist." This proposal suggests a new field for professional activity. In itself the idea sounds practicable so long as care is taken that we are not involved in any undertakings outside the scope of the profession. Self-help is sound policy, but in this matter it is regarded with good reason as unequal to the task. There is a difficulty in repudiating arrangements firmly rooted in localities and any efforts in that direction are but too likely to be defeated by the action of members of the profession who are outside these local combinations. To meet this difficulty it is not to be wondered at that the General Medical Council should be appealed to for an exercise of their power to register and approve those arrangements which have been found by experience to be most suitable to the various districts and to restrain registered practitioners from an unprofessional intrusion which tends to render joint efforts nugatory. This would doubtless afford the easiest way out of the present complication provided it could safely be resorted to without prejudice to our future. It must not be forgotten that a march has been stolen upon the profession owing to individual members having entered into treaty with organised societies. It is to be feared that the local combinations must remain hampered by the influence of these unfortunate beginnings and that their proposals might not come up to the level which the profession may have in prospect when the time comes for corporate and entirely representative action. In view of that object it might be undesirable that the profession should stand committed to any adjustment arrived at locally or even by a combination of many local groups. Indeed, there might be a danger lest any larger combination might wear in the eyes of the public an importance other than that which it claimed for itself and be thought to carry a mandate from the profession. In this respect there is perhaps an advantage in combination preserving for the present its purely local character.

The reasons for delay.—In favour of a policy of waiting the fact should be remembered that we are still within the period of transition and that we cannot yet foretell the pro-

¹ THE LANCET, Oct. 29th, 1893.

portions which the coöperative movement may ultimately attain. How best to deal with the great question is another uncertainty. Should it be by means of unofficial combination within the profession or by the action of our representative authority, the General Medical Council? If by the former method practical conclusions may be obtained at an earlier date, but they may be found to have fallen short of the requirements which the future may disclose. If by the latter considerable delay can hardly be avoided but the value of the result would be the greater in proportion to the time involved in its elaboration. One point appears to be clear. Any final settlement should be made on an independent basis. A privilege usurped, however unintentional the usurpation, is not from the standpoint of the injured party a fair basis for negotiation. All local attempts at readjustment must suffer from this disadvantage. It must be made evident that the profession repudiates the estimate which has unfortunately been placed upon the value of the services of its members through the accident of circumstances even more than owing to unguarded action on the part of a few. Though I may not have much support in leaning towards cautious delay in any comprehensive handling of the difficulty I feel sure that I am with all of you in thinking that its study cannot be safely postponed and that it should engage the earnest and early attention of our authorities.

The remedy from education of the public and the profession.—There is a different remedy, most effectual, but slow—the teaching and the appreciation of that which we owe to ourselves and which is due to us by the public. On our side the great body of the profession are guided by those high principles which are being universally taught. The dangerous few must be either educated up to its level or kept out. It is difficult to overrate the influence which can be exercised on the minds and dispositions of our pupils whilst they are passing through the medical schools. More may be done perhaps to raise in their youthful mind a superior ideal of the dignity and of the unity of the profession. Men cast in this mould might be allowed to shape the higher interests of the profession wherever they go. Much more general is the lack of due appreciation on the part of the public, especially among the lower classes who are not unlikely at times to misinterpret the most charitable intentions. Literature might do much to enlighten them as to our position; and in the recent lofty achievements of the profession there is a theme which, if properly handled, might work in the direction which is wanted. The remedy would thus consist first and foremost in the cultivation of a high ideal in the study of medicine, and in the second place of the authoritative influence which combined action might exercise upon the press.

MEDICAL EDUCATION.

The aspects of this subject which you are invited to consider are the professional examinations and their standard, the general scheme of studies or curriculum, and—not least important—the preliminary examination.

Examinations are a necessary evil. The public must be protected and a mass of important facts must be grasped by the student. But under this load the freedom both of study and of teaching suffers and imagination and original thought are less developed than memory. I would be the last to criticise adversely the present system. It is regarded by those able to judge as the best that could have been framed and as a vast improvement upon all previous attempts. It must command admiration in respect of the completeness of the teaching and of the amount of the knowledge required. But we have recently heard it from great authorities that the burden of scientific facts is becoming intolerable for the student of medicine and that some part of the burden must be removed; and in anticipation of a yet distant revision it may be permitted me to bring forward impressions gathered from some observation of the student and of his work, especially in their clinical aspects. A few advances in that direction would bring us almost within reach of a very perfect system. Clinical work is for us all the essential and the almost entire professional function; and the difficulty is how to give it a share not altogether disproportionate to its importance, since, without exaggeration, it might claim attention during the entire period of medical education, whilst in that time a vast number of important subjects have to be dealt with.

The preliminary examination and the recruiting of the profession.—The entrance examination is our Rubicon—not to be crossed without influencing the fate of individuals and of the profession. Parents, and particularly those who belong to the profession, are anxious to start their son without delay on his long journey through the curriculum. But in his interest quite as much as in that of the public and of the profession our gates should not be thrown open too widely lest he should be caught in a groove in which, as time wears on, he may find neither success nor escape. Physical strength and staying power are needed, not only for medical study, but yet more for practice, to meet the fatigue of country work or the constant worry in town. Unusual gifts of the mind never were essential, but weak or imperfectly trained faculties should exclude. Now more than ever endless painstaking and endurance are the chief requisites. Medical students need not be picked men, but tried men they should be; and to ensure this is the chief office of the entrance examination which at the same time might be a means of checking an excessive supply. To those familiar with its difficulties the study of medicine seems to be too

lightly undertaken and with insufficient preparation. In the navy professional life begins quite early and the studies are thenceforth directed towards the profession.

A similar early direction of the studies of the future pupil would relieve some of our troubles. Far from there being any idea of cramping his preliminary education there are practical and useful subjects, such as chemistry, botany, zoology, and geology, which would expand it. Our opportunity is to frame an entrance examination which should test the men as to their fitness for their future labours but should not demand of them anything wasteful from the point of view of their life's work. On the contrary, this examination might be rendered practically useful in relieving as much as possible the overloaded curriculum. An utilitarian position has been openly taken up in connexion with the preliminary examination and it was thought useful to sacrifice the ornament of a classical education as a necessary accomplishment. It remains doubtful whether the promise which had been held out as a compensation has been fulfilled. Though the study of Greek is discredited the ability to trace in a Greek dictionary the meaning of professional terms must appeal to reason as a requirement so long as our medical nomenclature is chiefly Greek. Since Greek is not an absolutely dead language it might perhaps be taught in the elementary proportion needed on a modern basis and without much loss of time. The utilitarian reform seems to have stopped short at this sacrifice of the classics. Yet there are studies now neglected in the curriculum the rudiments of which should not be entirely unknown to members of a learned profession—I refer to the elements of botany, of zoology, and of geology which are most desirable. If made compulsory together with chemistry and physics in the schedule of the preliminary examination these subjects would be useful to the student and educationally they would be some compensation for the loss of a classical training.

The curriculum.—How different medical education in the days when the curriculum was of two years and examinations were such as to suit that training! The curriculum was extended to three years and for a long time it was nominally four years, but in reality much longer for most students. The greatest improvement in medical education is the recently introduced five years' curriculum. This extension has already produced the best results, yet so much pressure remains that some change may become necessary early in the next century. The subjects are so numerous that they hardly fit within the period and from examination to examination the candidate has to slave to the end of his time. The question arises whether the best use is made of the additional year and whether a special claim upon it could not have been established in favour of our professional training so long and increasingly sacrificed to the preliminary subjects.

The old-fashioned apprenticeship was given up long ago without any equivalent as a substitute. It is impossible that we should ever return to it. Yet it was a thoroughly practical though primitive method of learning as much of the profession as the local opportunities allowed. When the apprentice came to town he was for his years a man of practical experience and in looking back upon his early difficulties and doubts he could appreciate the value of the theoretical knowledge to be gained in the dissecting room and in the wards. In that arrangement the supply of scientific knowledge was scanty but there was little waste from the point of view of utility. This distribution of the student's work has been completely reversed, but the partial sacrifice of the practical professional studies was the unintended result due to the desire to cultivate a higher science in the service of medicine. Unfortunately, for a long period the teaching of the sciences had to be theoretical and by lectures without any practical participation on the part of the learner. Thus the student, deprived of his apprenticeship, spent his early years in studying practical science in an unpractical way. When he joined the country practice as a qualified man it was the old apprenticeship over again—most things practical yet to be learnt—only the apprenticeship was at the wrong end of his time.

The academical and the utilitarian idea.—The present system might be regarded as “academical” to a fault. The subjects are dealt with as it were in compartments. The pupil is taken through each of them from its beginning to its end. This development was greatly stimulated from our seats of learning and in part reflected from universities abroad. Science was to be taught along systematic lines rather than towards any lateral goal of temporary or limited usefulness. The old universities have now given a practical turn to the academical idea and the medical schools throughout the country have laudably followed this intention, but not always with the necessary facilities, and in spite of a dearth of that first of all requisites, time, on the part of the student. Thus he has often had a complete course, but, as in those hasty visits to the wonders of the world, little of the inside of things may have been seen by him; he might perhaps have done more for himself had he attempted less. Too often also the teaching of valuable elementary subjects is practically divorced from their uses; and when the time comes when the chemical, the physiological, and the biological learning and methods might have been of practical value they have been forgotten. Often the ordinary student does not seem to connect the idea of the methods which he has applied in the physiological laboratory with the self-same methods as used in the wards. This would seem to suggest the desirability of associating, though not at too early a date, a medical purpose with the teaching of anatomy, physiology, biology, and chemistry, and to render their applications more clinical.

Method, which represents the academical idea, is essential; but it matters comparatively little in which field the mental powers are drilled. Any of the sciences well learnt, but particularly anatomy and physiology, would serve this educational need. But the utilitarian or professional idea looks to those few great principles and facts without which no physician or surgeon ought to trust himself to work as those upon which the main stress ought to be thrown in the teaching of the sciences. With these at his command the pupil might progress by imperceptible degrees to a higher level of scientific and clinical efficiency, and the acme of his scientific training would be the study of practical pharmacology which combines all the sciences bearing upon medicine. Here the better men would find their opportunity for individual research and intelligent clinical work would be stimulated.

We do not notice any progression of this sort in our present system. Whilst elementary physiological matters are imperfectly grasped some of the most difficult problems, those which tax the expert, are made the study of the beginner. For their due appreciation his highest level of scientific training and experience, his later periods of study, are best adapted. There is much to be said in favour of reserving these higher scientific developments as a reward for the veteran student. The younger student's practical work in laboratories might with advantage be concentrated upon those methods which are of practical use, further knowledge being added upon a firm foundation of facts previously known. Thus, whilst avoiding the risk of a premature entry into the wards it might be useful to shift a great deal of the practical physiological work from the physiological to the clinical laboratory. Work performed there in connexion with the examination of the urine, of the blood, of the physical conditions of the normal organs—a subject hitherto neglected—the study of the heart sounds independently of murmurs, of the respiratory sounds when uncomplicated by disease, of the position of viscera as recognised by palpation and auscultation would never be regarded as wasted either by the student or later by the practitioner and would be useful additions to the practical work of physiology. The full practical apprenticeship of the young clinical student would comprise a period of work in the physiological, in the chemical, and in the pharmaceutical laboratory. But for the greater number the chief apprenticeship would be that in the clinical laboratory, where he would acquire at an early date familiarity with those methods and apparatus which belong to his own future work.

Clinical laboratories in connexion with teaching hospitals are a great need for students and for research. Whilst in this country most philanthropists have made it their ideal to supply a sufficient number of beds and have overlooked the real pauper in the hospital, science, and the real need, that

of the knowledge for curing the diseases which are put into these beds, a much clearer view of things has long prevailed on the other side of the ocean. Practical sense has made it obvious that the object of hospital treatment is not euthanasia but recovery, the secret of which cannot be learnt without the means of study. The time cannot be long delayed when the necessity for a clinical laboratory for all hospitals, however small, will be recognised in this country. And when this need is more widely understood among us generosity will soon flow in this neglected channel. In medical schools clinical laboratories should be of adequate size and completeness, but special research must continue to be conducted in laboratories or institutes of a more elaborate order. Of these we already possess a few at our universities in London and now at Liverpool. But many more are needed and there is ample scope for private munificence.

Clinical medicine.—The cry from the obstetric side is, "Give us more time to train the clinical pupil in the most responsible and important part of his future practice." A justifiable demand; but how can it be granted when clinical medicine itself is starved? Nominally three years are provided for clinical training, but too often after upwards of two years absorbed in the preliminary studies these subjects are forgotten and may have to be learned again at the expense of time properly belonging to clinical work. If the subjects are thus to overlap and to be blended after all would it not be economy to begin the clinical training earlier and to adopt the policy of a continuous and progressive study of anatomy and physiology, increasing stress being laid with the progress of education on the higher aspects of both sciences as they bear upon clinical work?

The elementary clinical work seems to be too long delayed. After much time devoted to pure science and to examinations the pupil suddenly enters the wards unprepared. To him all clinical things are new. He is yet unfitted to utilise the advantages of a clinical clerkship which too often is conferred upon him at this stage. General elementary clinical practice is what he needs, not the exclusive association with two or three cases which he is unable to investigate for want of sufficient general experience of patients and of clinical methods. This he would quickly gain in the wards by contact with others of older standing whilst completing his knowledge previously acquired in the practical work of physiology and of chemistry. A few weeks spent in this way within sight and hearing of all that concerns disease and its investigation would enable him to take up with full profit the privileges of a clinical clerkship and to apply himself to the practical study of disease and of its treatment in association with the physician whose functions do not include the teaching of elementary methods. Inefficiency at the onset would be a less serious objection if the clinical clerk were prepared to retain his office until

he had exhausted its opportunities, but he lacks time for this. Barely has he completed six months of this clinical work and he is taken away to other subjects without any chance of holding the valuable office again. In this way the most important part of a clerk's advantages are often lost to him and this accounts for the unfinished clinical condition in which so many have entered upon practice. The five years' curriculum might have mitigated this evil, and some men in their fifth year have sufficient wisdom to walk the hospitals when an opportunity arises, but the greater part of their time is claimed for other pursuits and no provision has been made in the schedule for the much-needed extension of the clinical training.

Medical education would gain much in being made more continuous by blending the clinical idea from a relatively early date with the scientific studies and by keeping up a progression in the higher studies of anatomy and physiology. The student would find interest and meaning in each laboratory method because shown to be connected with some clinical point and his clinical anatomy and clinical physiology would remain his valued and lasting possessions.

Clinical anatomy.—Anatomy, the “mathematics of medicine,” will never cease to be indispensable and paramount among preliminary subjects, a fitting introduction to the most laborious profession. I do not know which is the greater wonder, the teaching of anatomy or the feat of learning it. Might not labour and time be economised? A thousand brains have been exercised as to how to render its study easier for the student on the old lines till we almost despair of ultimate success. Yet if it be true that elsewhere there are shorter methods we cannot afford to neglect any help.

Can “anatomy” be compressed or extended?—No part of anatomy is superfluous; but we cannot forget that for the sake of this completeness entire subjects are being thrown overboard. Some parts of anatomy are of supreme importance throughout professional life and the final examinations wisely require a knowledge both of surgical and of medical anatomy. But the average student has to learn these parts of the subject over again because meanwhile he has been allowed to forget them. The knowledge slowly and laboriously built up collapses like a house of cards as soon as the strain is over. If this is to be the result too much time would seem to have been claimed by anatomy at the beginning. The first year might suffice for undivided attention to the foundations of anatomy, whilst further instalments might be added by degrees and with a practical bearing. A study of the relations of parts might thus coincide with the teaching of operative surgery and medical anatomy with that of practical medicine and of clinical work. The term “clinical anatomy” includes both the surgical and the medical aspect. In both cases the long

anatomical curriculum should lead as a net result to an accurate knowledge of those parts of the body with which we shall be professionally concerned. If the rest is to be finally forgotten might not its teaching be compressed? For the higher examinations a late application to anatomy has always been necessary and this shows that the suggestions thrown out are not absolutely unpractical.

Clinical physiology.—Similar considerations apply to physiology. In physiology we use too little our great opportunities of studying man. What would not Harvey have accomplished had he been armed with our present instruments and methods of investigation? Have we done full justice to his great example in cultivating physiological observations in the human subject? What should we think of a practical course on the circulation which did not include listening with the stethoscope to the heart sounds and learning accurately where they are to be listened for? Or shall we deal practically with splanchnology and not make ourselves familiar by palpation and by percussion with the position of the various organs? The ophthalmoscope reveals some of the processes of life without interference with their integrity and the laryngoscope equals the perfection of the ophthalmoscope as an instrument of demonstration. Practical physiology, taught as it is according to the happy tendency of the day by personal instrumental manipulation, would hardly be complete without a knowledge of these among all other physiological instruments. Their exclusion under any pretext would lay us open to the reproach of a deliberate neglect of those instrumental methods which are the only ones professionally useful to us. All this is the physiology which is essential—not abstruse or difficult or repellent—and these physiological observations, though so important and indispensable, are of a purely elementary nature. They might afford an easy rise to the higher, truly difficult physiological inquiries for which many a young student is at first totally unprepared and remains to the last unappreciative, whilst the living body appeals to every intelligent youth. These, therefore, are instrumental methods to which the student might be initiated early and a skill in which he might then have ample time to develop. Efficiency of this sort is child's play to the learning of musical instruments. It presents a little difficulty only for the less gifted minority and for them of all others it is important to provide a long apprenticeship. The advantages of such a system would be great and would tell at both ends. Early in his career the student would be awakened to a professional interest in studies which would henceforth assume for him in all their theoretical details a practical purpose. The gain at the other end would be incalculable. Instead of his helplessness in approaching the bedside the novelty of the situation and its strangeness would have long been removed. He would feel the confidence of an observer and might proceed to truly clinical

studies of disease instead of wasting the clinical opportunity upon mere instrumental practice at the wrong time.

Centralisation and the one-portal system.—The continued agitation for reform has been a prominent feature of recent years. In this the profession has shown its earnestness in the cause of progress, in spite of the conservatism which renders it tenacious of its traditional independence, a conservatism bred of constant contact with nature and trained by the practice of self-government. Centralisation is the question of the day; it lies behind most of our present problems and in particular of those relating to university teaching, to the multiplicity of schools, to the variety of examining bodies, and to the relative value of the titles conferred by examination. The allurements of centralisation are great and great is the longing for it on the part of the categorical mind. But we may be well advised in not departing more than is unavoidable from the opposite system, perhaps less perfect in its form but more fertilising, a system to which we owe that which we are. Let us beware of sacrificing the vitality and spirit of our great professional bodies to the doubtful advantage of a monotonous uniformity. The one-portal system was some years ago even more urgently needed than it now is. Further improvement is necessary, but it is a question whether any radical change is indispensable. All that is practically wanted might be attained by all the corporations raising the standard of their examinations to a uniform level which would obviate any downward competition between them and at the same time would exclude from the profession, if possible at the entrance examination, those who are not thoroughly equal to its responsibilities, so that none but the fittest could get their names on to the Medical Register.

THE PLACE OF THE PROFESSION: ITS PROSPECTS AND ITS REWARDS.

The service to the individual and to the State.—I have dwelt upon the altruism of the profession in its constant war against disease. The character of the personal service rendered by its individual members is well known to us. It is often true, and not alone on the field of battle, that life itself is offered in the hope of saving life. There is little wonder that our profession should supply a shorter average of life than any other. Alone, the medical man is never allowed to be ill and he is singular in continuing to work whilst ill. No other profession claims that its labour shall be carried on at night and on holidays and to this must be added the constant exposure to infection and to other risks. But it is not sufficiently realised that the work done by the profession in saving the life of individuals and in checking the spread of disease is a direct service and a direct gain to the State. Has its practical value been fully recognised? We

enjoy, it is true, and are thankful for the favour and the protection of the State. But beyond charters and privileges such as are granted to great commercial associations working for their own profit and only indirectly for their fellow creatures and for the State little has been bestowed upon us. On the basis of this service we might as a profession be in a position to treat with the State. This was the custom with the ancient guilds. No such bargain has ever been submitted from our side. Men of medicine have parted with their "mystery" without even thinking of an equivalent which has not been proposed from the other side in the shape of any practical recognition. Whilst other professions act on the principle "Do ut des" the fruits of medical science which prosper our days of peace and ensure the success of our wars are a free gift to the State. And that profession which alone shares with the Church the direct care for the welfare of the community has little share in its honours.

The deserts of the profession.—Yet having regard to the value which the individual sets upon his own life, to the actual value which lives saved represent to the State and to the untold boon to humanity in the alleviation of suffering it is difficult to see what recognition could be adequate. In a younger world with such a record healers of the sick would have walked as gods among men. From the individual the medical attendant receives an honorarium only in acknowledgment of a debt which cannot be entirely paid. By the State this acknowledgment of debt is hardly made and the honorarium is scantily bestowed though statesmen admit that without a healthy population there can be no national greatness.

The place of medicine among professions.—Precedence between professions and their social status are regulated by custom and there is no desire among us to disturb these ancient traditions. It may be said of all professions that they have risen in dignity. In the case of medicine the rise in worth as estimated in vastly increased knowledge, in usefulness as judged from the amount of human life saved, and in influence as regards the practical reforms administered by the State under our guidance has been out of all proportion to any position which it has ever held. The end of the last century witnessed a revolution in France which brought to the front tumultuously the social layers by whom the chief work of the world had been carried on without recognition. Less turbulently but with unfaltering step medicine has been marching towards its proper place in the front rank of the professions. What is the medical profession in the State? Nothing. What should it be? The chief and most important influence. For it was truly said: "Sanitas sanitatum, omnia sanitas."

The reward: its deeds and its dignity.—The power silently wielded by our profession is ever increasing and must give it

importance and ultimately a foremost position. For the present its reward lies in the consciousness of this fact, imperfectly realised by our fellow men; and also in its dignity, in its intellectual work, and in a knowledge that its ministrations are indispensable as well as beneficent. In this isolation and this consciousness of power there is a superiority. The profession is a self-made aristocracy of usefulness whose distinction is not exclusiveness but the widest sympathy, whose strength is not privilege but prodigal self-sacrifice. Let the estimate placed upon it by its members never fall beneath its great aims and achievements. Our part as its representatives is one of increasing loyalty and self-dignity. This duty lies before each of us and its fruits are within our own grasp as may be seen by the success of combined action of the profession whenever it has been attempted. In addition to Pandora's legacy to our race there is for our profession a large inheritance of charity as well as of faith in the progress of humanity and in its own destinies. These things that we see and know cannot much longer escape the notice of the people and of their leaders.

